

KENWOOD

CONSTANT-VOLTAGE
CURRENT POWER SUPPLY

PD8-20(D)

PD8-30(D)

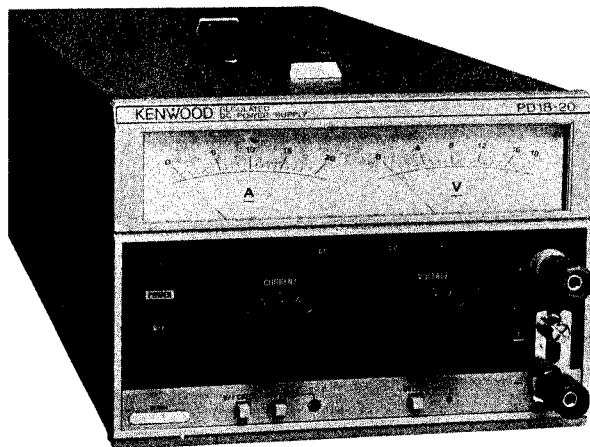
PD18-20(D)

PD18-30(D)

PD35-20(D)

SERVICE MANUAL

TRIO-KENWOOD CORPORATION



WARNING

The following instructions are for use by qualified personnel only. To avoid electric shock, do not per-

form servicing other than contained in the operating instructions unless you are qualified to do so.

SAFETY

Before connecting the instrument to a power source, carefully read the following information, then verify that the proper power cord is used and the proper line fuse is installed for power source. If the power cord is not applied for specified voltage, there is always a certain amount of danger from electric shock.

Line voltage

This instrument operates using ac-power input voltages that 100/120/220/240 V at frequencies from 50 Hz to 60 Hz.

Power cord

The ground wire of the 3-wire ac power plug places the chassis and housing of this instrument at earth ground. Do not attempt to defeat the ground wire connection or float this instrument; to do so may pose a great safety hazard. The appropriate power cord is supplied by an option that is specified when the instrument is ordered.

Warning

If groundings, especially points $\downarrow$ (V_G) and $\downarrow$ (I_G), are short-circuited during servicing, it could lead to pattern damage due to large amount of current flow on the PCB. Take appropriate care.

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SPECIFICATIONS

Model PD		8-20 (D)	8-30 (D)	18-20 (D)	18-30 (D)	35-20 (D)
Output						
Output voltage 10-positions		0 to 8 V	0 to 8 V	0 to 18 V	0 to 18 V	0 to 36 V
Resolution (theoretical)		1.4 mV	1.4 mV	3 mV	3 mV	6 mV
Output current 1-position		0 to 20 A	0 to 30 A	0 to 20 A	0 to 30 A	0 to 20 A
Resolution (theoretical)		30 mA	45 mA	30 mA	45 mA	30 mA
Voltage regulation (CV)						
With input changes of ± 10% Note 1)		0.005% + 1 mV				
With load changes of 0 to 100% Note 1)		0.005% + 1 mV	0.005% + 2 mV			
Ripples/noises (10 Hz to 1 MHz) rms Note 2)		0.5 mV rms				
Transient response, (standard value)		100 μsec, typical				
Temperature characteristic, (standard value)		100ppm/°C, typical				
Remote control resistance/voltage		approx. 0 to 10 kΩ/0 to 10 V				
Current regulation (CC)						
With input changes of ± 10%		2 mA	3 mA	5 mA	5 mA	5 mA
With load changes of 0 to 100%		5 mA	5 mA	5 mA	5 mA	5 mA
Ripples/noises (10 Hz to 1 MHz) rms Note 2)		5 mA	10 mA	10 mArms	10 mArms	10 mArms
Remote control resistance/voltage		approx. 0 to 10 kΩ/0 to 10 V				
Protection						
Operation		turns off power switch				
Temperature detection		100°C				
Overvoltage protection level (standard value)		15 to 110% of rated output voltage				
Meter and indications						
Voltmeter (class 2.5) F.S		8 V	8 V	18 V	18 V	36 V
Ammeter (class 2.5) F.S		20 A	30 A	20 A	30 A	20 A
D type	Voltage at digital display (Auto range)	19.99 V, 199.9 V (FS) two ranges ±(0.1% rdg + 1 digit) 23°C ± 5°C; Less than 80% RH				
	Current at digital display (Fix. range)	99.9 A (FS), ±(0.5% rdg + 1 digit) 23°C ± 5°C, Less than 80% RH				
Indication of constant voltage operation		CV green LED lights				
Indication of constant current operation		CC red LED lights				
Indication of output		OUTPUT red LED lights when turned on				
Function						
Output switch		Turns on and off output (preset voltage indicated with meter during off time)				
Voltage/current check switch		Preset voltage and current indicated with meters during on time				
Overvoltage preset (OVP)		Indicates the over voltage protection level on the voltmeter during on time				
Remote sensing		Via the rear panel senser terminal				
Series control		Master/slave control				
Parallel control		Master/slave control				
Operating conditions						
Temperature		0°C to 40°C				
Humidity		Less than 80%				
Cooling		Fan				
Output polarity		Plus or minus				
Withstand voltage to ground		± 250VDC				

SPECIFICATIONS

Model PD		8-20 (D)	8-30 (D)	18-20 (D)	18-30 (D)	35-20 (D)
Insulation resistance						
Chassis-input line		30 MΩ or more at 500 VDC				
Chassis-output line		20 MΩ or more at 500 VDC				
Power supply						
Input voltage		100/120/220/240 VAC ±10%, 1 φ selectable internally				
Power consumption (at AC 100)		Approx. 420 W	Approx. 590 W	Approx. 620 W	Approx. 930 W	Approx. 1 kW
		Approx. 670 VA	Approx. 960 VA	Approx. 1 kVA	Approx. 1.4 kVA	Approx. 1.6 kVA
Dimensions and weight						
Enclosure dimensions	(W)	208	208	208	208	208
	(H)	147	147	147	147	147
	(D)	348	457	420	457	420
Maximum dimensions	(W)	208	208	208	208	208
	(H)	168	168	168	168	168
	(D)	410	519	482	519	482
Weight		Approx. 15 kg	Approx. 20 kg	Approx. 19 kg	Approx. 24 kg	Approx. 23 kg
Accessories						
Instruction manual		1	1	1	1	1
Input power cord	100 V, 120 V area	2-core AC cable (2 m)	2-core cabtyre cable (3 m)	(3-core cabtyre cable, 3 m)		
	220 V, 240 V area	3-core AC cable (2 m)	3-core cabtyre cable (3 m)			
Fuse	100 V, 120 V area	10 A × 2	15 A × 2	15 A × 2	20 A × 2	20 A × 2
	220 V, 240 V area	4 A × 2	6 A × 2	8 A × 2	10 A × 2	10 A × 2

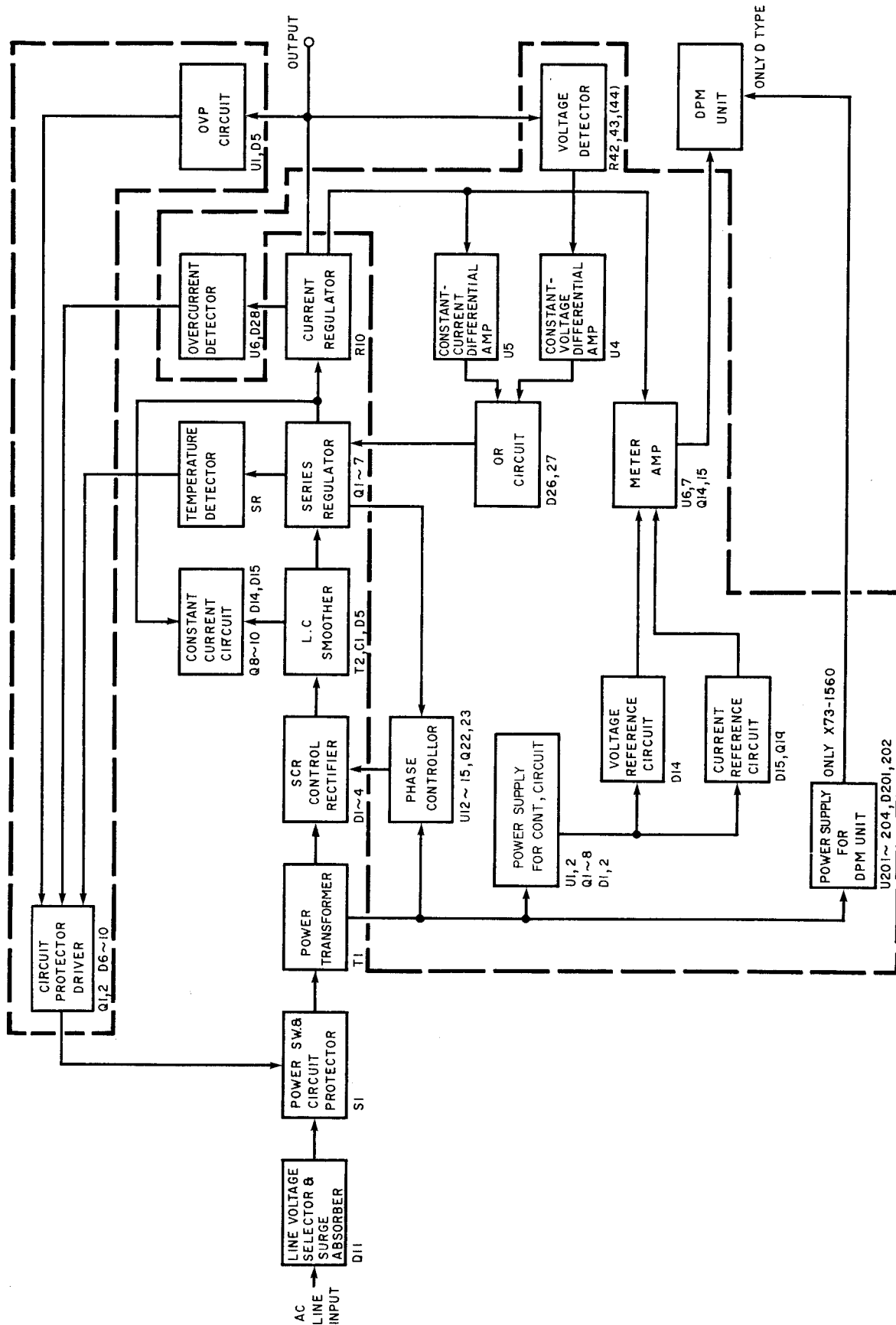
Note: 1. Measured via the sensing terminal.

2. Measured with plus or minus grounded.

Rack adaptor RK-601 (U4 of EIA standards) is optionally available.

■ Circuit and ratings are subject to change without notice due to developments in technology.

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

DESCRIPTION OF BLOCK DIAGRAM

- 1. Voltage selector and surge absorber.**
Selects rated input voltage and limits external noise.
- 2. Power switch (circuit protector)**
This function as a power switch, and breaks the power supply in event of an accident in the power source.
- 3. Power transformer**
Provides auxiliary windings to operates the main and accessory circuits in the transformer.
- 4. SCR control rectification circuit**
A rectification circuit to control the DC level synchronized with AC, with the gate pulse from the phase control circuit.
- 5. L, C smoothing circuit**
Averages the rectified output from the choke coil and capacitor. The choke coil limits transient current for a high power factor and low ripple.
- 6. Phase control circuit**
Generates a trigger pulse AC synchronized with the SCR control rectification circuit to maintain the V_{CE} of the series transistors at a constant voltage.
- 7. Series control circuit**
Used to control high output with a small signal by Darlington connecting the high output power transistor.
- 8. Current detecting circuit**
A stable detection voltage is obtained by effecting adequate derating, using resistor with a low temperature factor.
- 9. Voltage detecting circuit**
A stable detection voltage is obtained using a highly precise metal oxide film resistor with a low temperature factor.
- 10. CC error (differential) amp**
A highly precise amplifier which uses a high-gain, low-drift OP Amp and compares output from the current detecting circuit with the current reference voltage.
- 11. CV error (differential) amp**
A highly precise amplifier which uses a high-gain, low-drift OP Amp and compares output from the voltage detecting circuit with the voltage reference voltage.
- 12. OR circuit**
Selects automatically one (using) the OR circuit from the CV or CC amp depending on output and setting.
- 13. Circuit power source**
Supplies regulated DC voltage to operate the control circuit and provides a protection function.
- 14. Voltage reference circuit**
This circuit is within the control power source feedback loop, and stably drives the temperature compensation zener diode.
- 15. Current reference circuit**
Drives the temperature compensation zener diode using the constant current circuit to provide a stable output.
- 16. OVP circuit**
Detects output voltage within a range of 15%-110% of the rated output voltage, according to the external overvoltage setting.
- 17. Overcurrent detecting circuit**
Detects when the current reaches a level of 125% of the rated current, using the signal from the current detecting circuit.
- 18. Temperature detecting switch**
Detects when the heat sink of series transistor becomes 100 °C with the thermal relay.
- 19. Constant-current circuit**
A discharge circuit for series transistor leakage current and the output capacitor.
- 20. Circuit protector drive circuit**
Drives the protector with the signals that come from the respective detecting circuits. It provides a constant and discharge circuit to minimize influence from small noise, etc.
- 21. Meter amp**
Selects output voltage, voltage or reference voltage with the V/I, OUTPUT and OVP and passes it through the buffer amp to provide stabilized meter output.

CIRCUIT DESCRIPTION

1. MAIN POWER SOURCE

The AC input voltage is rectified by D1-D4, and the output smoothed by the choke coils T2 and C1. The thyristors D1 and D2 are controlled in the phase control circuit. The rectified voltage goes through the series control transistors Q1-Qn and current detecting resistor R10, and is supplied to the output +OUT terminal. The -OUT terminal goes through D6 and returns to the rectification circuit.

2. REFERENCE VOLTAGE CIRCUIT

This circuit generates the control circuit power source and a variable reference voltage for voltage and current (V_{ref} , I_{ref}). The AC voltage is rectified by D1 and, a constant voltage of ± 15 V is generated in the constant voltage circuit which consists of Q1-Q8, U1 and D14.

The reference voltage of ± 15 V is generated by the zener diode D14.

-15 V is generated by the error amplifier U1 (1/2), reference voltage (D14) and the dividing resistors R20 and R21.

+15 V is generated by the error amplifier U1 (2/2) and dividing resistors R9 and R10.

The GND of the ± 15 V is indicated by $\downarrow V_G$ on the circuit diagram, and is connected to the +OUT terminal. The power source of this differential amplifier U1 is supplied by the zener diodes D6 and D9.

V_{ref} is the variable reference voltage for constant voltage control, and the V_{ref} voltage (0-10 V) is output between the rear terminals (3)-(5) from U3 (2/2), VR1 [VOLTAGE].

I_{ref} is the variable reference voltage for constant current control, and the V_{ref} voltage (0-10 V) is output to the rear terminals (8)-(11) from U3 (1/2), VR2 [CURRENT].

3. VOLTAGE/CURRENT CONTROL CIRCUIT (See Fig. 2)

With the floating type of voltage control, the control circuit is controlled using the +OUT terminal as a reference GND. The GND of the control power source ± 15 V ($\downarrow V_G$) is therefore of equal potential to the +OUT terminal.

The +OUT terminal voltage and a voltage divided by the voltage detecting resistors R42 and R43 are applied to the voltage control feedback amplifier U4.

Both input terminals of U4 are operated to keep the same potential.

The output from the feedback amplifier U4 goes through D26, is amplified by Q12 and Q13, passes through Q7 (Y86), and drives the base of the next stage current amplification circuit Q1-Qn. The voltage at both ends of the constant current detecting resistor R10 (0.025 ohms, 40 W) is used as a reference for the next constant current operation.

This point is the GND during constant current operation, is indicated by $\downarrow I_G$ on the circuit diagram, and becomes the reference point.

When the output current I_o flows, the voltage produced in the current detecting resistor R10 is applied to the control amplifier U5. The voltage divided to I_{ref} voltage feedback by R45 and R46 is applied to U5.

When the voltage at both ends of R10 exceeds this divided voltage (R45 and R46), U5 is operated to drive as the constant current through D27.

The output from U5 drives Q1-Qn (series regulators) through the same route as during constant voltage operation. When the current exceeds the constant current setting value, the operation of the feedback amplifier circuit U4 is simultaneously stopped, and the D26 route is interrupted. Namely D26 and D27 are control OR circuits.

4. METER CIRCUIT

The voltmeter indicating circuit detects voltage from the +OUT terminal, which goes through U2 (2/2), the OVP CHECK switch, U6 (1/2), the V/I CHECK switch, the OUTPUT ON/OFF switch, meter amp U7 (2/2) and is applied to the voltmeter.

When V/I CHECK is on, the V_{ref} voltage is applied directly to the meter amp U7 (2/2).

The voltage detected by the current detecting resistor R10 for the ammeter circuit goes through the V/I CHECK switch and is applied to the ammeter amp U7 (1/2).

During V/I CHECK, the I_{ref} voltage is applied directly to the meter amp U7 (1/2). Q1-Qn (series regulators) are controlled by Q10, Q12, Q13 (X73) and Q7 (Y86), by operating the OUTPUT ON/OFF switch, to turn output voltage ON and OFF.

5. OVP CIRCUIT AND OCP CIRCUIT

The D5 (zener diode) reference voltage that is divided with VR1 and the +OUT terminal voltage divided by R3, R4 is applied to the OVP voltage detecting comparator U1 (1/2). When the output voltage exceeds the voltage setting of VR1 (OVP setting VR), the output of U1 is inverted. The inverted output goes through D8, Q1 and D9, drives thyristor D10 and turns the breaker switch S1 OFF.

The reference (GND) of the OVP circuit is the same as the +OUT terminal V_G of the voltage control circuit.

The detecting voltage generated by the current detecting resistor R10 and the reference voltage of D28 (zener diode) is applied to the OCP current detecting comparator U6 (2/2).

If an excessive amount of current flows (overcurrent), the output of U6 (2/2) is inverted, it goes through D7, Q1 and D9 to drive the thyristor D10 and turns the breaker switch S1 OFF.

Furthermore, the thermal relay provided on the heat sink to prevent overheating of the series regulator transistor detects abnormal temperature rise, and turns the breaker switch S1 OFF through D6.

The OVP circuit, OCP circuit and overheating prevention protective circuit drive the breaker switch S1 with the OR

CIRCUIT DESCRIPTION

circuit that consists of D6, D7 and D8.

6. PHASE CONTROL CIRCUIT

The PD series power source features a phase control circuit to control the thyristors D1 and D2 of the main power source rectifying bridge, in order to minimize power loss of the series control transistors (Q1-Qn) by maintaining the voltage between the Q1-Qn collectors and emitters, regardless of load. The GND of this phase control circuit consists of the emitter of the series control transistors Q1-Qn, with an independent floating circuit from the unit power source.

A stable ± 15 V is generated for the phase control circuit power source by U10 and U11. A sawtooth wave that is synchronized with the AC power source line is generated by D42, D43 and U12. This sawtooth wave is applied to U13 (2/2). (See Fig. 3)

The collector voltage (V_{CE} detecting voltage) of the series control transistor is applied to the error amplifier U13 (1/2). The DC voltage of U13 (1/2) is added to the sawtooth wave of U12 (2/2) and applied to the input of U13 (2/2). The pulse width modulated (PWM) output of U13 (2/2) is finely differentiated by C64, etc., to drive the one shot multi U14.

The output of U14 (trigger gate pulse) is separated from the GND of the phase control circuit, and amplified by Q22 and Q23 to drive the thyristors (D1 and D2).

Note: GND indication of respective circuits

Case		Unit GND (Case or Chassis)
V_G		Voltage control circuit GND
I_G		Current control circuit GND (one end — point "a" of current detecting resistor R10)
		Phase control circuit GND (emitter point of series control transistors Q1-Qn)

Caution:

Do not short the insulation to the GND of the respective circuits when repairing breakdowns.

This may result in burning of the wiring and/or printed circuit board.

7. DPM UNIT (D type only)

The digital panel meter unit consists of the voltage indicator circuit and current indicator circuit, which both function the same electrically.

U1 (U31) is the 3-1/2 digit indication A/D converter, with a 7 segment LED driver incorporated. U2 (U32) generates the reference voltage.

The optimum value is set with VR1 (VR31), and VR2 (VR32) is for full scale adjustment. The A/D converter is provided with an external circuit constant to enable full scale indication of 1999 when 1.999 V is input, regardless of voltage indication, current indication and type of unit. Namely, these circuit constants are R1 (R31), C3 (C33), C4 (C34) and C5 (C35).

The main amp output of the amp unit (X37) is fed to the attenuator which consists of R20 (R50) and the amp unit R81 (R73). Voltage indication is 3-1/2 digits, but a 2nd attenuator is provided for 2 step auto range in case of indication 20 V or higher. When the indication in the U3 circuit exceeds 1999, a range up signal is output, and a range down signal is output when the indication is 1000 or lower. This signal is latched to the RS flip flop which comprises U4, is passed through Q1, Q2 and drives the decimal point LED. Simultaneously, Q3 drives the analog switch Q4.

Since the ground levels for the meter output of the voltage and current are different, the respective power supplies are isolated.

CIRCUIT DESCRIPTION

PRINCIPLE OF THE FLOATING REGULATOR

Vref: Reference voltage at CV
Iref: Reference voltage at CC
VG: Ground at CV
IG: Ground at CC

The output voltage at CC operation

$$V_o = \frac{R_2}{R_1} V_{ref}$$

The output current at CC operation

$$I_o = \frac{K}{R_s} I_{ref} \text{ (where } K = \frac{R_4}{R_3 + R_4} \text{)}$$

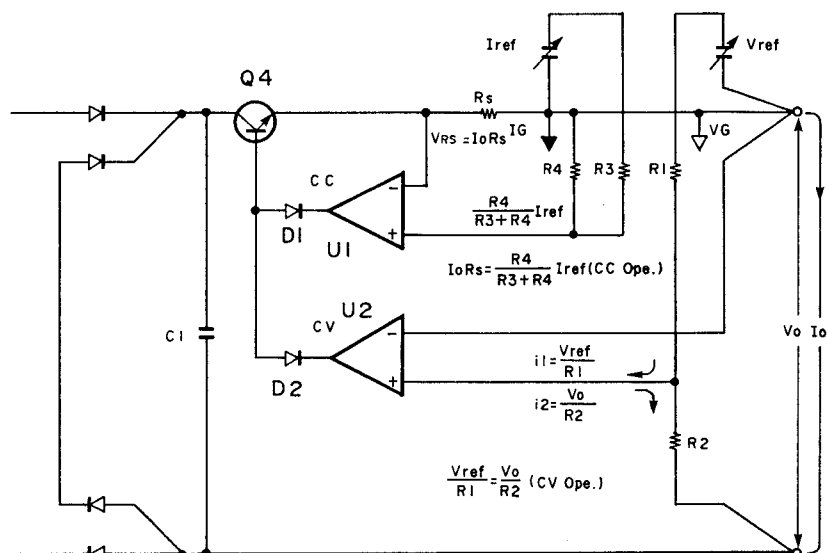


Fig. 2 With the PD series, the constant output voltage and current are obtained by changing the Vref and Iref.

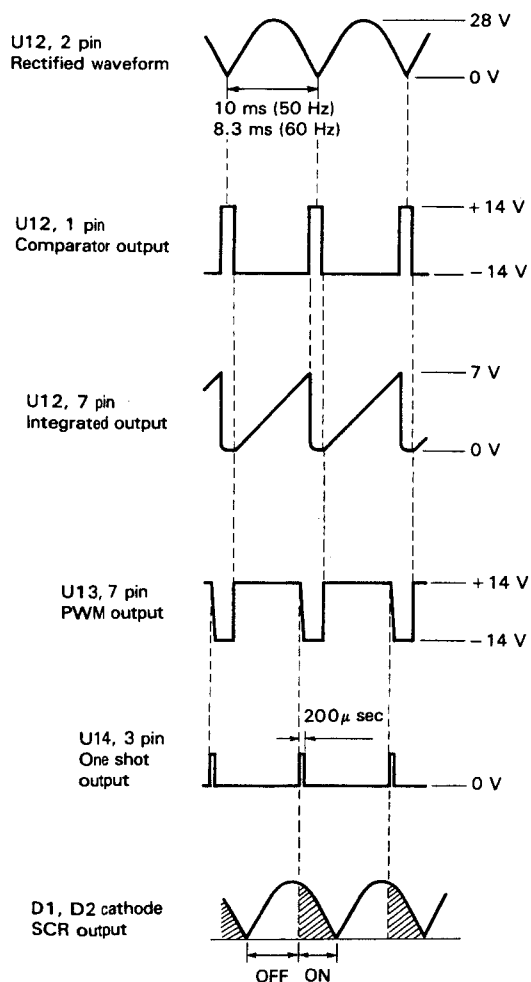


Fig. 3

ADJUSTMENT

ADJUSTMENT

To obtain the best performance, periodically calibrate the unit. Sometimes, only one mode need be calibrated, while at other times, all modes should be calibrated.

When one mode is calibrated, it must be noted that the other modes may be affected

When calibrating all modes, perform the calibration in specified sequence. The following calibration required an accurate measuring instrument and an insulated adjusting flat blade screwdriver.

For optimum adjustment, turn the power on and warm up this equipment sufficiently (more than 30 minutes) before starting.

Before calibrating the unit, check the power supply voltage and the zero of the voltmeter and ammeter.

TEST EQUIPMENT REQUIRED

The following instrument or their equivalent should be used for making adjustment.

Multimeter	8810A	FLUKE
Oscilloscope	CS-1040	TRIO

PREPARATION FOR ADJUSTMENT

1) The control and switch settings listed below should be used for each adjustment procedure.

Exceptions to these setting will be noted as occur.

2) Power cord should be correctly connected.

3) Short bar should be connected as follows.

⊕ - ⊕S, ⊖ - ⊖S, ① - ②, ③ - ④, ⑥ - ⑦, ⑧ - ⑨, ⑤ - ⊖ (on the front panel)

4) Heat sink should be insulated with respect to the chassis.

5) Unless otherwise specified, set each control as follows after completion of each adjustment.

POWER	ON
VOLTAGE	Maximum counterclockwise position
CURRENT	Maximum counterclockwise position
OUTPUT	OFF (■)
V/I CHECK	OFF (■)
OVP CHECK	OFF (■)
OVP adj. control	Maximum clockwise position

Item	Control and setting	Test Equip.	Adj. Control	Specifications	Procedure
C1 Voltage check		8810A		Less than 10V	Connect a multimeter to measure the voltage between C1 (+ side) and (- side).
± 15V check		8810A		± 15V ± 0.5V	Connect a multimeter to measure the voltage between OUTPUT (⊕) on the front panel and ± 15V test points on the AMP unit, respectively.
V _{CE} voltage coarse adjustment	VOLTAGE; maximum clockwise position CURRENT; maximum clockwise position	8810A	VR20	Approx 4.5V	Connect a multimeter to measure the voltage between collector and emitter of the transistor on the heat sink. See Fig. 4.
V _{REF} offset adjustment	OUTPUT; OFF VOLTAGE; maximum counterclockwise position CURRENT; maximum clockwise position	8810A	VR2	0V ± 0.5mV	Connect a multimeter between OUTPUT terminal ⊕S and control terminal NO.3 on the rear panel.
V _{REF} gain adjustment	VOLTAGE; maximum clockwise position CURRENT; maximum clockwise position	8810A	VR1	10.25V ± 0.03 V	Connect a multimeter between OUTPUT terminal ⊕S and control terminal NO.3 on the rear panel.
V meter offset adjustment	VOLTAGE; maximum counterclockwise position CURRENT; maximum clockwise position		VR8	0V D type; 0V ± 0V	Make adjustment while observing the V meter on the front panel.

ADJUSTMENT

Item	Control and setting	Test Equip.	Adj. Control	Specifications	Procedure
V OUT offset adjustment	OUTPUT; ON VOLTAGE; maximum counterclockwise position CURRENT; maximum clockwise position		VR11	0 V D type; 0 V $\pm$ 0 V	Make adjustment while observing the V meter on the front panel.
V meter gain adjustment	CURRENT; maximum clockwise position V/I CHECK; OFF	8810A	VR7	Specified voltage(full scale) D type; specified voltage $\pm$ 1 digit	Connect a multimeter between OUTPUT terminal $\oplus$ and $\ominus$ on the front panel. Rotating the VOLTAGE control to indicate specified voltage range on the multimeter. Make adjustment while observing the V meter on the front panel.
V check adjustment	OUTPUT; ON CURRENT; maximum clockwise position V/I CHECK; ON	8810A	VR5	Specified voltage (full scale) D type; specified voltage $\pm$ 1 digit	
I _{REF} offset adjustment	OUTPUT; ON VOLTAGE; maximum clockwise position CURRENT; maximum counterclockwise position	8810A Load (1) Current detecting resistor	VR4	10mV $\pm$ 1mV	1 Connect a load (1) which can accept the specified current value. 2 Make adjustment so that the current value of the load (1) displays + 2.5% for the specified current value while measuring the current value.
I _{REF} gain adjustment	OUTPUT; ON VOLTAGE; maximum clockwise position CURRENT; optimum position		VR3	+ 2.5% for specified current	
I meter offset adjustment	OUTPUT; OFF VOLTAGE; maximum clockwise position CURRENT; maximum counterclockwise position		VR10	0A D type; 0A $\pm$ 0A	
I meter gain adjustment	OUTPUT; ON VOLTAGE; maximum clockwise position CURRENT; optimum position V/I CHECK; OFF	8810A Load (1) Current detecting resistor	VR9	Specified current value(full scale) D type; specified current value $\pm$ 1 digit	1 Connect a load (1) which can accept the specified current value. 2 Set the value to specified current value by using the CURRENT control. 3 Make adjustment so that the value of I meter on the front panel becomes the specified current value.
I check adjustment	V/I CHECK; ON VOLTAGE; maximum clockwise position CURRENT; optimum position	8810A Load (1) Current detecting resistor	VR6	Specified current value (full scale) D type; specified current value $\pm$ 1 digit	

Note: Be sure to adjust the I_{REF} gain, I meter offset and I check when the CC indicator is lit.

ADJUSTMENT

Item	Control and setting	Test Equip.	Adj. Control	Specifications	Procedure
V_{CE} voltage fine adjustment	VOLTAGE; maximum clockwise position CURRENT; maximum clockwise position	Load (2)	VR20	$4.5V \pm 0.1V$	Repeat entire procedure for V_{CE} coarse adjustment. Be sure to connect a load with which 10% current value for specified current can be supplied.

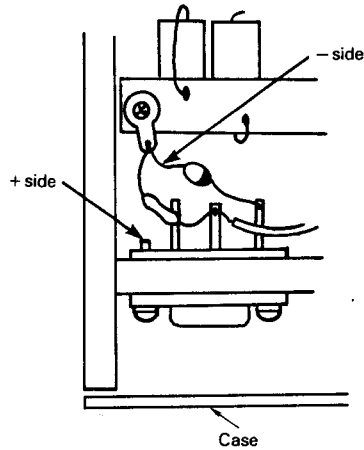


Fig. 4 Right side of heatsink

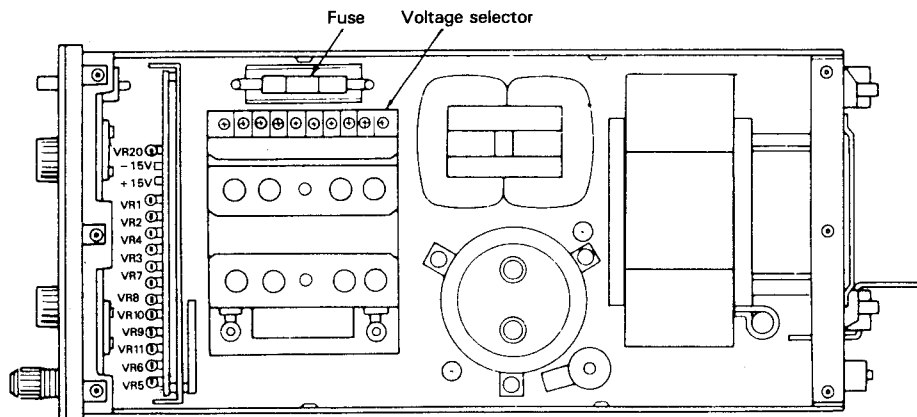


Fig. 5 Location of adj. control

Current detecting resistor	10mΩ	50W, 0.1%	Note: With an electronic load (35 V, 30 A) for load (1) and (2), the adjustment may be easy.
Load (1)	0.1Ω	300W, 5%	
Load (2)	5Ω	150W, 5% (for PD18-30)	

TROUBLESHOOTING

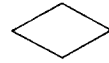
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Y86 ... Main chassis

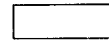
X73 ... X73-1550 (or X73-1560): AMP UNIT

X77 ... X77-1340: OVP UNIT

Note:



Check and judgement

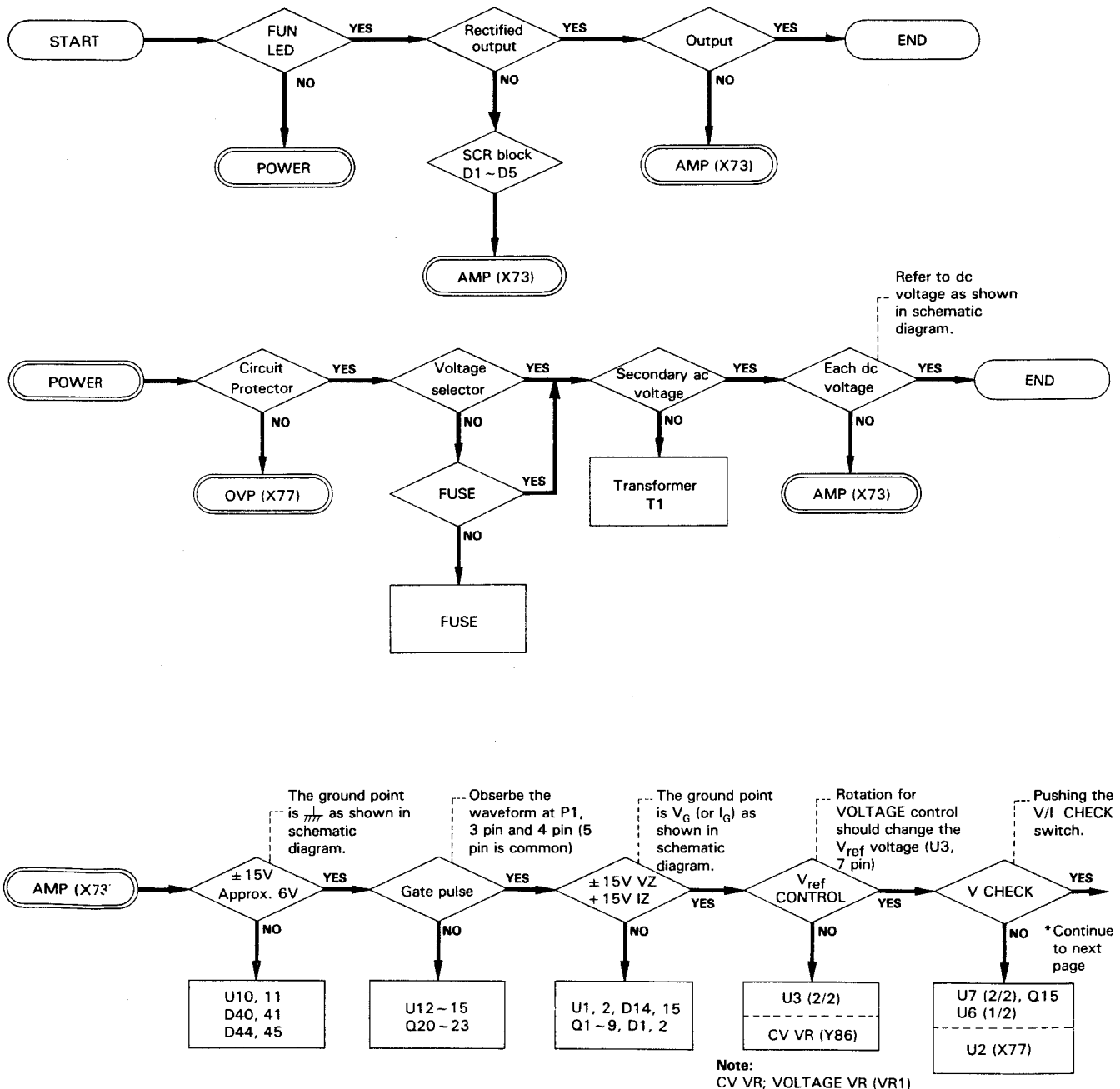


Malfunction



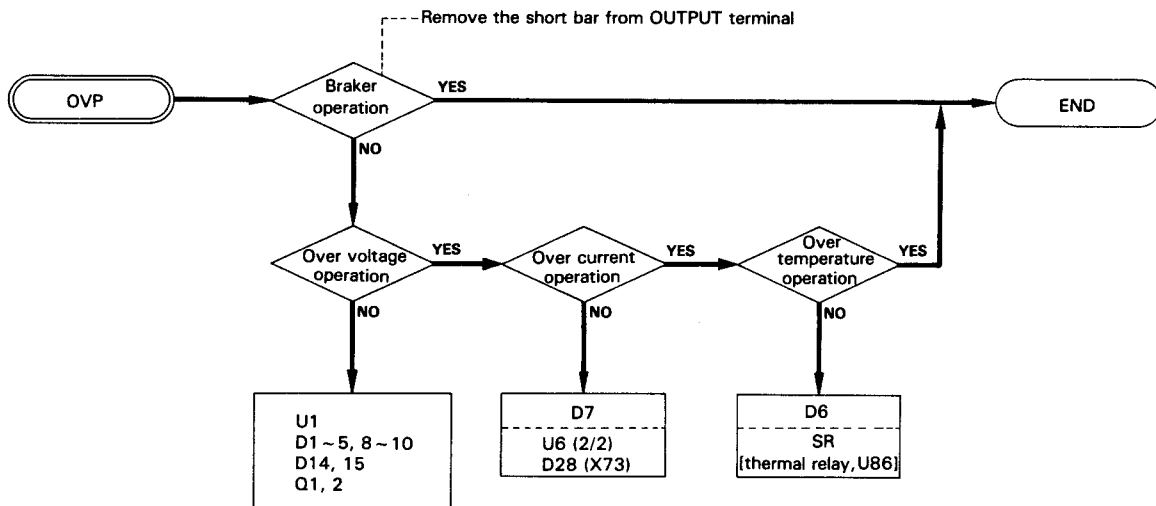
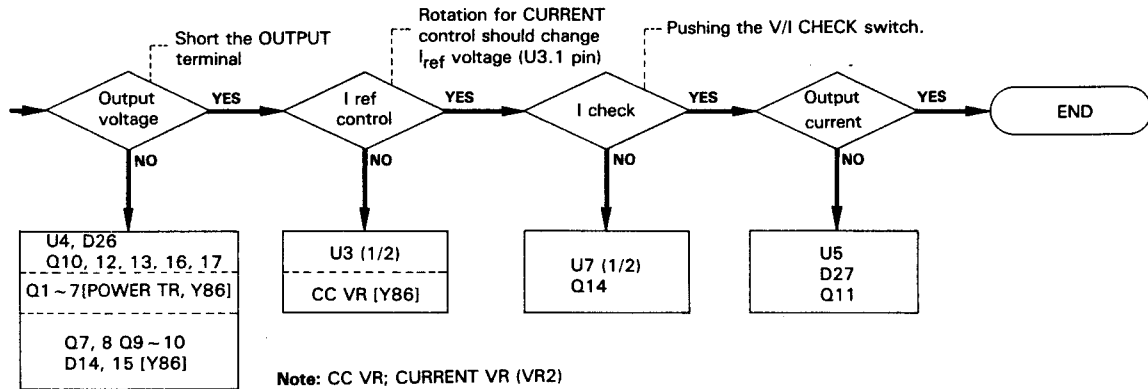
Item

1. ANALOG METER SECTION



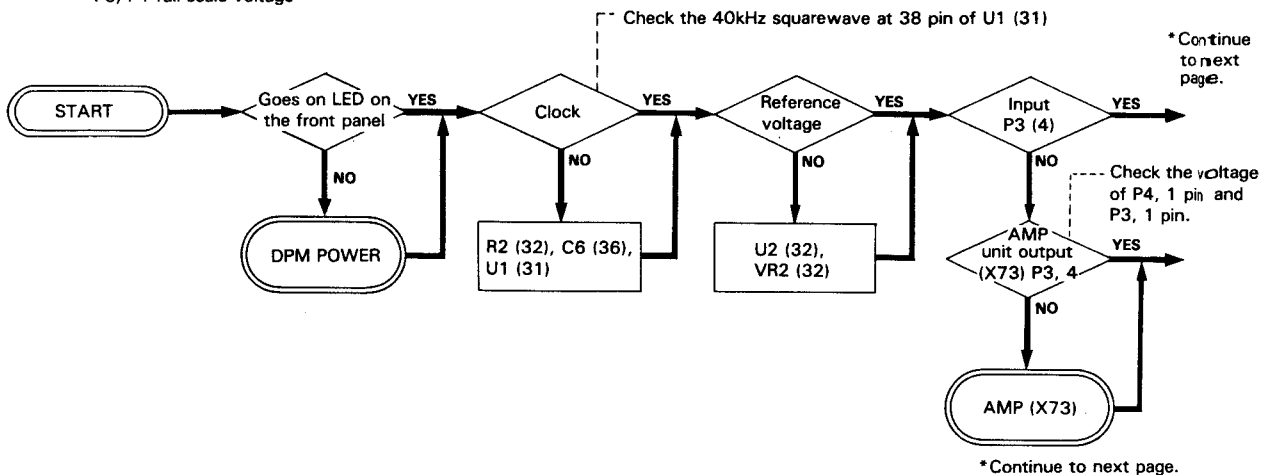
TROUBLESHOOTING

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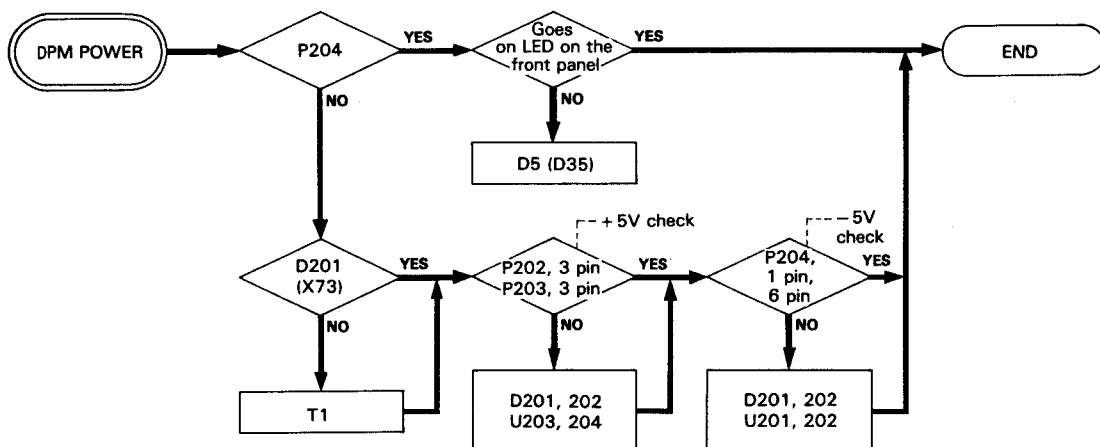
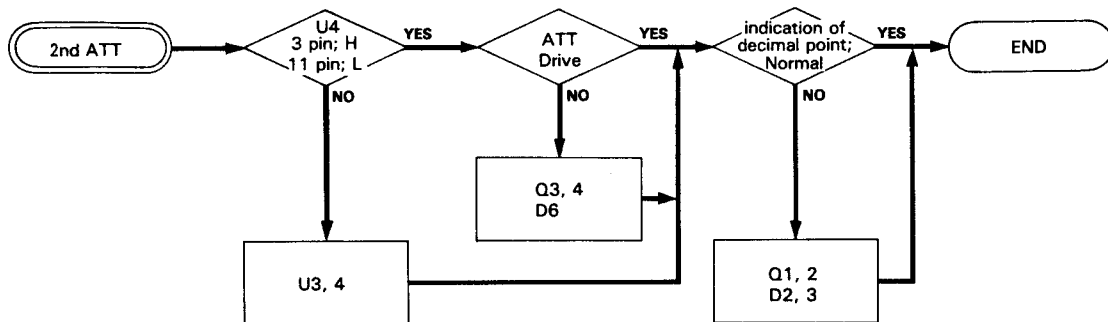
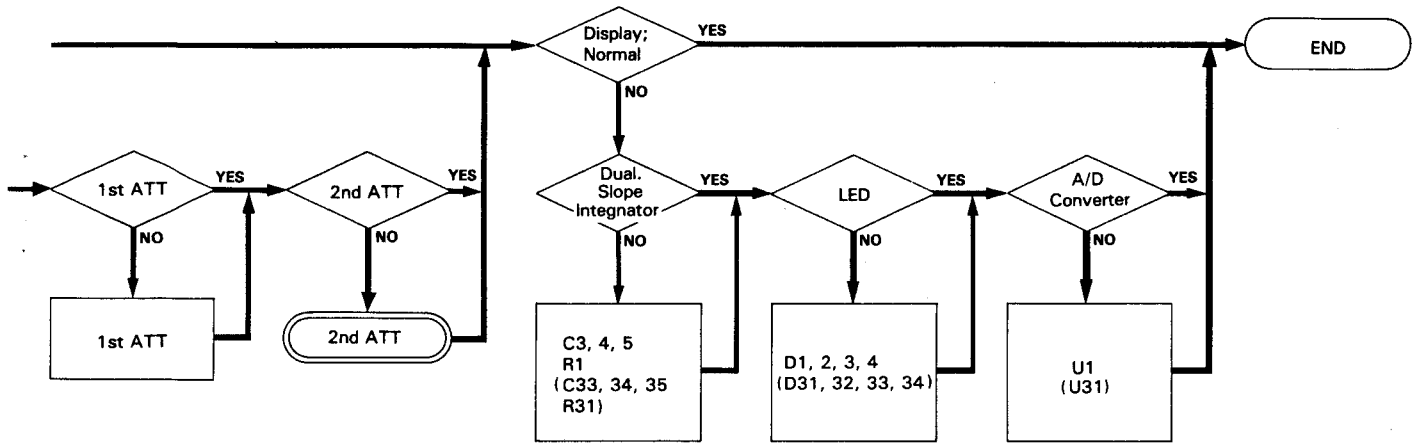
2. DIGITAL POWER METER SECTION

Power supply of P204; $\pm 5V$
P3, P4 full scale voltage



TROUBLESHOOTING

* Continue from front page.



PARTS LIST

MAIN CHASSIS (Y86-)

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	PD8-20		PD8-30		PD18-20		PD18-30		PD35-20	
					D		D		D		D		D
1		A01-1125-13	CASE			*	*			*	*		
1		A01-1124-13	CASE					*	*			*	*
1		A01-1149-03	CASE	*	*								
2		A10-1439-32	CHASSIS			*	*			*	*		
2		A10-1440-32	CHASSIS					*	*			*	*
2		A10-1445-02	CHASSIS	*	*								
3		A20-2775-15	DIECAST PANEL	*	*	*	*	*	*	*	*	*	*
4		A21-1062-03	DECORATIVE PANEL	*		*		*		*		*	
4		A21-1065-03	DECORATIVE PANEL		*		*		*		*		*
5		B07-0713-04	ESCUTCHEON	*	*	*	*	*	*	*	*	*	*
6		B40-2765-04	NAME PLATE (S./No.)	*	*	*	*	*	*	*	*	*	*
—		B19-0738-03	FILTER		*		*		*		*		*
7		B03-0601-03	DRESSING PLATE		*				*		*		*
8		B40-2804-33	NAME PLATE				*			*			
8		B40-2814-33	NAME PLATE				*				*		
8		B40-2808-13	NAME PLATE					*					
8		B40-2817-13	NAME PLATE						*				
8		B40-2805-13	NAME PLATE									*	
8		B40-2815-13	NAME PLATE										*
8		B40-2840-03	NAME PLATE	*									
8		B40-2842-03	NAME PLATE			*							
8		B40-2844-03	NAME PLATE		*								
8		B40-2845-03	NAME PLATE		*								
8		B40-2846-03	NAME PLATE				*						
—		B41-0630-04	CAUTION LABEL					*		*	*		
104		B41-0627-14	CAUTION LABEL	*	*	*	*		*		*		*
—		B41-0770-04	CAUTION LABEL							*	*	*	*
—		B41-0769-04	CAUTION LABEL					*	*				
—		B41-0777-04	CAUTION LABEL	*	*								
—		B41-0779-04	CAUTION LABEL				*						
—		B50-7545-10	INSTRUCTION MANUAL	*	*	*	*	*	*	*	*	*	*
9		E02-0137-05	SOCKET FOR TR.	*	*	*	*	*	*	*	*	*	*
10		E20-0391-05	TERMINAL BLOCK		*	*	*	*	*	*	*	*	*
11		E20-0491-05	TERMINAL BLOCK	*	*	*	*	*	*	*	*	*	*
—		E18-0351-05	INLET 3P	*	*								
12		E20-1291-05	TERMINAL BLOCK	*	*	*	*	*	*	*	*	*	*
13		E21-0661-03	TERMINAL					*	*	*	*	*	*
13		E21-0661-13	TERMINAL	*	*	*	*		*	*			*
14		E21-0662-03	TERMINAL		*		*	*	*	*	*	*	*
14		E21-0662-13	TERMINAL	*	*	*			*				*
—		E21-0663-04	EARTH TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E22-0181-05	LUG BOARD	*	*	*	*	*	*	*	*	*	*
—		E23-0015-04	EARTH LUG	*	*	*	*	*	*	*	*	*	*
—		E23-0017-04	EARTH LUG	*		*	*	*	*	*	*	*	*
—		E23-0513-05	EARTH LUG	*	*	*	*	*	*	*	*	*	*
—		E23-0520-05	EARTH LUG		*	*	*		*				*
—		E23-0534-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0535-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0536-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0537-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0538-05	GRIP TERMINAL					*	*			*	*
—		E23-0539-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0541-05	GRIP TERMINAL	*	*			*	*			*	*
—		E23-0542-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0544-05	GRIP TERMINAL	*	*	*	*	*	*	*	*	*	*
—		E23-0549-05	GRIP TERMINAL	*	*	*	*						
—		E23-0550-05	GRIP TERMINAL	*	*								
—		E29-0501-05	TERMINAL CAP		*			*					*
15		E29-0535-04	SHORTING BAR	*	*	*	*	*	*	*	*	*	*
16		E29-0536-14	SHORTING BAR	*	*	*	*	*	*	*	*	*	*

PARTS LIST

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	PD8-20		PD8-30		PD18-20		PD18-30		PD35-20	
				*	D	*	D	*	D	*	D	*	D
17		E29-0537-14	SHORTING BAR	*	*	*	*	*	*	*	*	*	*
18		E29-0538-04	OUTPUT TERMINAL	*	*	*	*	*	*	*	*	*	*
19		E30-1864-05	POWER CORD ASS'Y			*	*	*	*	*	*	*	*
—		E33-4071-00	WIRE ASS'Y		*	*	*	*	*	*	*	*	*
—		E33-4086-00	WIRE ASS'Y	*	*	*							
—		E33-4073-00	WIRE ASS'Y			*	*	*	*	*	*	*	*
—		E33-4063-00	WIRE ASS'Y							*	*		
—		E33-4064-00	WIRE ASS'Y					*				*	*
—		E33-4087-00	WIRE ASS'Y	*	*	*							
—		E33-4088-00	WIRE ASS'Y	*	*	*							
—		E33-4089-00	WIRE ASS'Y			*	*						
20		F01-0839-04	HEAT SINK			*	*			*	*		
20		F01-0840-04	HEAT SINK	*	*			*	*			*	*
21		F01-0841-04	HEAT SINK	*	*	*	*	*	*	*	*	*	*
22		F01-0842-04	HEAT SINK	*	*	*	*	*	*	*	*	*	*
—		F05-1039-05	FUSE (10A)							*	*	*	*
—		F06-8021-05	FUSE (15A)					*	*				
—		F05-4026-05	FUSE (4A)	*	*								
—		F05-6028-05	FUSE (6A)			*	*						
23		F07-0927-05	PROTECTION COVER FOR FAN	*	*	*	*	*		*	*	*	*
—		F07-0928-05	PROTECTION COVER FOR FAN		*	*	*	*		*	*	*	*
—		F19-0712-05	CAP	*	*	*	*	*	*	*	*	*	*
—		F20-0642-04	INSULATOR	*	*	*	*	*	*	*	*	*	*
—		F20-0647-05	INSULATOR		*		*				*	*	*
—		F29-0501-05	INSULATOR	*		*	*	*	*	*	*	*	*
—		F29-0502-05	VINYL TUBE	*	*	*	*	*	*	*	*	*	*
—		F29-0503-05	VINYL TUBE	*	*	*	*	*	*	*	*	*	*
—		F29-0504-05	VINYL TUBE	*	*	*	*	*	*	*	*	*	*
—		F29-0505-05	VINYL TUBE	*	*	*	*	*	*	*	*	*	*
—		H01-5736-04	CARTON BOX							*			
—		H01-5748-04	CARTON BOX								*		
—		H01-5739-04	CARTON BOX					*					
—		H01-5750-04	CARTON BOX						*				
—		H01-5737-04	CARTON BOX									*	
—		H01-5749-04	CARTON BOX										*
—		H01-5772-04	CARTON BOX	*									
—		H01-5774-04	CARTON BOX			*							
—		H01-5776-04	CARTON BOX		*								
—		H01-5778-04	CARTON BOX				*						
—		H10-2823-12	FORMED STYRENE PAD	*	*	*	*	*	*	*	*	*	*
—		H10-2824-02	FORMED STYRENE PAD	*	*		*	*	*	*	*	*	*
—		H19-0508-04	CARTON BOX	*	*		*	*	*	*	*	*	*
—		H21-0805-04	VINYL COVER	*	*	*	*	*	*	*	*	*	*
—		H25-0029-04	POLYETHYLENE BAG	*	*	*	*	*	*	*	*	*	*
—		H25-0820-04	POLYETHYLENE BAG	*	*	*	*	*	*	*	*	*	*
24		J02-0049-14	LEG	*	*	*	*	*	*	*	*	*	*
25		J11-0504-05	CLAMPER	*	*	*	*	*	*	*	*	*	*
—		J13-0504-05	FUSE HOLDER					*	*	*	*	*	*
—		J13-0033-15	FUSE HOLDER	*	*	*							
—		J13-0506-05	FUSE HOLDER		*	*	*						
—		J21-0392-04	HOLDER FOR LEAD	*	*	*	*	*	*	*	*	*	*
26		J21-2912-04	HOLDER FOR LED	*	*	*	*	*	*	*	*	*	*
101		J21-2948-04	BRACKET	*	*	*	*	*	*	*	*	*	*
102		J21-2949-04	BRACKET	*	*		*	*	*	*	*	*	*
27		J21-2996-04	BRACKET FOR HEAT SINK			*	*			*	*		
27		J21-2999-04	BRACKET FOR HEAT SINK	*	*			*	*			*	*
28		J21-2997-04	BRACKET FOR HEAT SINK		*	*	*			*	*		
28		J21-3000-04	BRACKET FOR HEAT SINK	*	*			*	*			*	*
29		J21-4501-04	BRACKET			*	*			*	*		
30		J21-4502-04	BRACKET			*	*			*	*		
—		J21-4503-04	BRACKET	*	*			*	*			*	*

PARTS LIST

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	PD8-20		PD8-30		PD18-20		PD18-30		PD35-20	
				*	D	*	D	*	D	*	D	*	D
—		J21-4504-04	BRACKET	*	*			*	*			*	*
31		J21-4505-14	BRACKET			*	*			*	*		
31		J21-4506-04	BRACKET	*	*			*	*			*	*
—		J21-4507-03	BRACKET	*				*		*		*	
32		J21-4508-13	BRACKET	*	*	*	*	*	*	*	*	*	*
33		J21-4509-24	BRACKET	*	*	*	*	*	*	*	*	*	*
—		J21-4510-14	BRACKET	*	*	*	*	*	*	*	*	*	*
34		J21-4513-03	BRACKET		*		*		*		*		*
35		J21-4514-14	BRACKET			*	*			*	*		
—		J21-4561-04	BRACKET			*							
36		J25-5069-03	PCB UNMOUNTED	*	*	*	*	*	*	*	*	*	*
100		J31-0607-05	COLLAR	*	*	*	*	*	*	*	*	*	*
37		J42-0525-05	BUSHING	*	*	*	*	*	*	*	*	*	*
—		J61-0049-05	WIRE BAND	*	*	*	*	*	*	*	*	*	*
38		K01-0409-05	HANDLE	*	*	*	*	*	*	*	*	*	*
39		K21-0877-03	KNOB	*	*	*	*	*	*	*	*	*	*
40		K27-0528-04	PUSH KNOB	*	*	*	*	*	*	*	*	*	*
41		S51-1516-05	THERMAL SENSOR					*	*	*	*	*	*
41		S51-1518-05	THERMAL SENSOR	*	*	*	*						
42		S59-1501-05	CIRCUIT PROTECTOR	*	*	*	*	*	*	*	*	*	*
43		T40-0404-05	DC MOTOR	*	*	*	*	*	*	*	*	*	*
44		X73-1560-00	AMP UNIT								*		
44		X73-1560-01	AMP UNIT										*
44		X73-1560-02	AMP UNIT					*					
44		X73-1560-03	AMP UNIT		*								
44		X73-1560-04	AMP UNIT			*							
44		X73-1550-00	AMP UNIT							*			
44		X73-1550-01	AMP UNIT									*	
44		X73-1550-02	AMP UNIT					*					
44		X73-1550-03	AMP UNIT	*									
44		X73-1550-04	AMP UNIT			*							
45		X76-1250-00	DMP UNIT								*		
45		X76-1250-01	DMP UNIT										*
45		X76-1250-02	DMP UNIT					*					
45		X76-1250-03	DMP UNIT		*								
45		X76-1250-04	DMP UNIT			*							
46		X77-1340-00	OVP UNIT					*	*	*	*		
46		X77-1340-01	OVP UNIT									*	*
46		X77-1340-02	OVP UNIT	*	*	*	*						
47	C001	C90-0921-05	CAP ELECTRO 68000 35V					*	*				
47	C001	C90-0922-05	CAP ELECTRO 100000 35V							*	*		
47	C001	C90-0923-05	CAP ELECTRO 39000 63V									*	*
47	C001	C90-0952-05	CAP ELECTRO 150000 25V			*	*						
47	C001	C90-0953-05	CAP ELECTRO 68000 25V	*	*								
—	C002	C90-0919-05	CAP ELECTRO 1000 50V	*	*	*	*	*	*	*	*	*	*
48	C003	C90-0920-05	CAP ELECTRO 1000 50V	*	*	*	*	*	*	*	*	*	*
—	C004	C91-0594-05	CAP POLYESTER 0.1 ±10% 250V	*	*	*	*	*	*	*	*	*	*
—	C005	C91-0593-05	CAP POLYESTER 0.1 ±20% 250V	*	*	*	*	*	*	*	*	*	*
105	C006	C91-0596-05	CAP NOISE KILLER 0.2 ±20% 250V	*	*	*	*	*	*	*	*	*	*
—	C007	CF93AN2E334K	CAP POLYESTER 0.33 ±10% 250V	*	*	*	*	*	*	*	*	*	*
—	C008	CF93AN2E334K	CAP POLYESTER 0.33 ±10% 250V	*	*	*	*	*	*	*	*	*	*
—	C009	CF93AN2E334K	CAP POLYESTER 0.33 ±10% 250V	*	*	*	*	*	*	*	*	*	*
—	C010	CE04W1E101M	CAP ELECTRO 100 ±20% 25V	*	*	*	*	*	*	*	*	*	*
—	C011	CE04W1E101M	CAP ELECTRO 100 ±20% 25V	*	*	*	*	*	*	*	*	*	*
—	C012	CQ92M2A472J	CAP MYLAR 4700P ±5% 100V					*	*	*	*	*	*
—	C014	CF92V1H473J	CAP POLYESTER 0.047 50V	*	*	*	*	*	*	*	*	*	*
49	D001	CP08C	THYRISTOR							*	*		
49	D001	CQ08C	THYRISTOR	*	*	*	*	*	*			*	*
50	D002	CP08C	THYRISTOR			*	*	*	*	*	*		

PARTS LIST

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	PD8-20		PD8-30		PD18-20		PD18-30		PD35-20	
					D		D		D		D		D
50	D002	CQ08C	THYRISTOR	*	*	*	*	*	*			*	*
51	D003	P20C	DIODE		*	*	*			*	*		*
51	D003	0810	DIODE					*					
51	D003	Q20C	DIODE	*	*			*				*	*
52	D004	P20C	DIODE			*	*			*	*		
52	D004	0810	DIODE					*					
52	D004	Q20C	DIODE	*	*			*				*	*
53	D005	P19C	DIODE	*	*	*	*	*	*	*	*	*	*
54	D006	P19C	DIODE	*	*	*	*	*	*	*	*	*	*
—	D007	P19C	DIODE	*	*	*	*	*	*	*	*	*	*
55	D008	AR4133S	LED	*	*	*	*	*	*	*	*	*	*
	D009	AR4133S	LED	*	*	*	*	*	*	*	*	*	*
57	D010	BG4133S	LED	*	*	*	*	*	*	*	*	*	*
	D011	ERZC14DK431	ZNR	*	*	*	*	*	*	*	*	*	*
—	D014	RD15F (B2)	DIODE ZENER	*	*	*	*	*	*	*	*	*	*
—	D015	RD15F (B2)	DIODE ZENER	*	*	*	*	*	*	*	*	*	*
—	D016	DSA1A2	DIODE	*	*	*	*	*	*	*	*	*	*
—													
—	M001	B31-0725-05	METER							*			
—	M001	B31-0726-05	METER									*	
—	M001	B31-0728-05	METER			*							
—	M001	B31-0729-05	METER	*									
—	M002	B31-0725-05	METER							*			
—	M002	B31-0726-05	METER									*	
—	M002	B31-0727-05	METER					*					
—	M002	B31-0729-05	METER	*									
—													
58	P001	E10-1061-05	EDGE CARD CONNECTOR	*	*	*	*	*	*	*	*	*	*
59	P002	E10-3661-05	EDGE CARD CONNECTOR	*	*	*	*	*	*	*	*	*	*
—	P003	E31-2513-05	LEADWIRE/CONNECTOR	*				*		*		*	
—	P003	E31-2607-05	LEADWIRE/CONNECTOR			*							
—	P004	E31-2512-05	LEADWIRE/CONNECTOR	*				*		*		*	
—	P004	E31-2606-05	LEADWIRE/CONNECTOR			*							
—	P005	E31-2514-05	LEADWIRE/CONNECTOR	*	*	*	*	*	*	*	*	*	*
—	P006	E31-2511-05	LEADWIRE/CONNECTOR		*		*	*	*	*	*	*	*
—	P006	E31-2586-05	LEADWIRE/CONNECTOR	*	*	*	*						
—	P007	E31-2511-05	LEADWIRE/CONNECTOR					*	*	*	*	*	*
—	P007	E31-2587-05	LEADWIRE/CONNECTOR			*	*						
—	P007	E31-2596-05	LEADWIRE/CONNECTOR		*								
—	P008	E31-2511-05	LEADWIRE/CONNECTOR					*	*	*	*	*	*
—	P008	E31-2586-05	LEADWIRE/CONNECTOR	*	*	*	*						
—	P009	E31-2514-05	LEADWIRE/CONNECTOR	*	*	*	*	*	*	*	*	*	*
—	P010	E31-2517-05	LEADWIRE/CONNECTOR	*	*	*	*	*	*	*	*	*	*
—	P011	E31-2517-05	LEADWIRE/CONNECTOR	*	*	*	*	*	*	*	*	*	*
—	P012	E31-2518-05	LEADWIRE/CONNECTOR	*	*	*	*	*	*	*	*	*	*
—	P013	E31-2511-05	LEADWIRE/CONNECTOR					*	*	*	*	*	*
—	P013	E31-2597-05	LEADWIRE/CONNECTOR		*								
—	P013	E31-2588-05	LEADWIRE/CONNECTOR			*	*						
—	P013	E40-0673-05	PIN CONNECTOR 6P	*	*		*	*	*	*	*	*	*
—	P014	E40-0273-05	PIN CONNECTOR 2P					*		*			
—	P015	E31-2511-05	LEADWIRE/CONNECTOR					*	*	*		*	
—	P015	E31-2586-05	LEADWIRE/CONNECTOR	*	*	*	*						
—	P015	E40-0273-05	PIN CONNECTOR 2P	*	*	*	*	*	*	*	*	*	*
—	P016	E40-0273-05	PIN CONNECTOR 2P					*		*			
—	P201	E31-2519-05	LEADWIRE/CONNECTOR		*		*			*		*	
—	P202	E31-2519-05	LEADWIRE/CONNECTOR		*		*			*		*	
—	P203	E31-2519-05	LEADWIRE/CONNECTOR		*		*			*		*	
—													
60	Q001	2SC2608 (Y)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
60	Q002	2SC2608 (Y)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
60	Q003	2SC2608 (Y)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
60	Q004	2SC2608 (Y)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
60	Q005	2SC2608 (Y)	TR. SI. NPN			*	*			*	*		
60	Q006	2SC2608 (Y)	TR. SI. NPN			*	*			*	*		

PARTS LIST

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	PD8-20		PD8-30		PD18-20		PD18-30		PD35-20	
				*	D	*	D	*	D	*	D	*	D
61	Q007	2SC2581 (O)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
62	Q008	2SA1106 (O)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
—	Q009	2SC3066 (F, G)	TR. SI. NPN	*	*	*	*	*	*	*	*	*	*
—	Q010	2SK170 (BL)	FET, N-CHANNEL	*	*	*	*	*	*	*	*	*	*
63	R001	RW98A3HOR1J	RES WIRE-WOUND 0.1 ±5% 5W	*	*	*	*	*	*	*	*	*	*
63	R002	RW98A3HOR1J	RES WIRE-WOUND 0.1 ±5% 5W	*	*	*	*	*	*	*	*	*	*
63	R003	RW98A3HOR1J	RES WIRE-WOUND 0.1 ±5% 5W	*	*	*	*	*	*	*	*	*	*
63	R004	RW98A3HOR1J	RES WIRE-WOUND 0.1 ±5% 5W	*	*	*	*	*	*	*	*	*	*
63	R005	RW98A3HOR1J	RES WIRE-WOUND 0.1 ±5% 5W	*	*	*	*	*	*	*	*	*	*
63	R006	RW98A3HOR1J	RES WIRE-WOUND 0.1 ±5% 5W	*	*	*	*	*	*	*	*	*	*
—	R007	R92-1121-05	RES METAL FILM 100 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
—	R007	RD14BB2H101J	RES CARBON 100 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
—	R008	RD14BB2E152J	RES CARBON 1.5k ±5% 1/4W	*	*	*	*	*	*	*	*	*	*
—	R008	RD14BB2E821J	RES CARBON 820 ±5% 1/4W	*	*	*	*	*	*	*	*	*	*
—	R009	R92-1120-05	RES METAL FILM 33 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
—	R009	RD14BB2H101J	RES CARBON 100 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
103	R010	R92-1074-05	RES WIRE-WOUND 0.012 ±5% 40W	*	*	*	*	*	*	*	*	*	*
103	R010	R92-1075-05	RES WIRE-WOUND 0.025 ±5% 40W	*	*	*	*	*	*	*	*	*	*
103	R010	R92-1129-05	RES METAL-FILM 0.025 ±5% 40W	*	*	*	*	*	*	*	*	*	*
—	R011	RS14AB3A330J	RES METAL FILM 33 ±5% 1W	*	*	*	*	*	*	*	*	*	*
—	R012	RS14AB3A330J	RES METAL FILM 33 ±5% 1W	*	*	*	*	*	*	*	*	*	*
—	R013	RS14AB3A330J	RES METAL FILM 33 ±5% 1W	*	*	*	*	*	*	*	*	*	*
—	R014	RW26G3K471K	RES WIRE-WOUND 470 ±10% 10W	*	*	*	*	*	*	*	*	*	*
—	R014	RW26G4C471J	RES WIRE-WOUND 470 ±10% 20W	*	*	*	*	*	*	*	*	*	*
—	R014	RD14DB3D471J	RES CARBON 470 ±10% 2W	*	*	*	*	*	*	*	*	*	*
—	R015	RS14AB3F102J	RES METAL FILM 1k ±5% 3W	*	*	*	*	*	*	*	*	*	*
—	R016	RS14AB3F102J	RES METAL FILM 1k ±5% 3W	*	*	*	*	*	*	*	*	*	*
—	R017	RD14BB2C102J	RES CARBON 1k ±5% 1/6W	*	*	*	*	*	*	*	*	*	*
—	R018	RD14BB2C102J	RES CARBON 1k ±5% 1/6W	*	*	*	*	*	*	*	*	*	*
—	R019	R92-1117-05	RES METAL FILM 3.9 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
—	R019	R92-1056-05	RES METAL FILM 2.2 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
—	R019	RD14DB2H5R6J	RES CARBON 5.6 ±5% 1/2W	*	*	*	*	*	*	*	*	*	*
—	R020	RS14AB3D561J	RES METAL FILM 560 ±5% 2W	*	*	*	*	*	*	*	*	*	*
—	R020	RW26G4C221K	RES WIRE-WOUND 220 ±10% 20W	*	*	*	*	*	*	*	*	*	*
—	R021	RD4BB2E243J	RES CARBON 24k ±10% 1/4W	*	*	*	*	*	*	*	*	*	*
—	R022	RD14BB2C102J	RES CARBON 1k ±5% 1/6W	*	*	*	*	*	*	*	*	*	*
—	S001	S59-1501-05	CIRCUIT PROTECTOR	*	*	*	*	*	*	*	*	*	*
64	T001	L01-9416-05	POWER TRANSFORMER	*	*	*	*	*	*	*	*	*	*
64	T001	L01-9426-05	POWER TRANSFORMER	*	*	*	*	*	*	*	*	*	*
64	T001	L01-9436-05	POWER TRANSFORMER	*	*	*	*	*	*	*	*	*	*
64	T001	L01-9484-05	POWER TRANSFORMER	*	*	*	*	*	*	*	*	*	*
64	T001	L01-9494-05	POWER TRANSFORMER	*	*	*	*	*	*	*	*	*	*
65	T002	L15-0402-05	CHOKE COIL	*	*	*	*	*	*	*	*	*	*
65	T002	L15-0403-05	CHOKE COIL	*	*	*	*	*	*	*	*	*	*
65	T002	L15-0404-05	CHOKE COIL	*	*	*	*	*	*	*	*	*	*
65	T002	L15-0405-05	CHOKE COIL	*	*	*	*	*	*	*	*	*	*
65	T002	L15-0406-05	CHOKE COIL	*	*	*	*	*	*	*	*	*	*
66	U203	μPC7805H	IC	*	*	*	*	*	*	*	*	*	*
66	U204	μPC7805H	IC	*	*	*	*	*	*	*	*	*	*
67	VR001	R29-0505-05	VR	*	*	*	*	*	*	*	*	*	*
68	VR002	R05-3508-05	VR	*	*	*	*	*	*	*	*	*	*

PARTS LIST

COMMON PARTS X73-1560, X73-1550

REF.NO	PARTS NO	NAME & DESCRIPTION
	E23-0508-04	TEST TERMINAL
	F01-0845-04	HEAT SINK
	F01-0846-05	HEAT SINK
	F20-0647-05	INSULATOR
	J25-5062-02	PCB (UNMOUNTED)
	N09-0623-04	SCREW
	N19-0191-05	WASHER NONMETAL
	R92-0150-05	JUMPING RES. ZERO OHM
	212-1018-05	TUBE (PLASTIC)
	212-2010-05	TUBE (PLASTIC)
C001	C092M2A104K	CAP. MYLAR 0.1 10% 100V
C002	C092M2A104K	CAP. MYLAR 0.1 10% 100V
C003	C90-0924-05	CAP. ELECTRO 330 50V
C004	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C005	CE04W1E221M	CAP. ELECTRO 220 20% 25V
C006	C90-0939-05	CAP. ELECTRO 470 35V
C007	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C008	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C009	CE04W1E221M	CAP. ELECTRO 220 20% 25V
C010	C90-0924-05	CAP. ELECTRO 330 50V
C011	CE04W1E101M	CAP. ELECTRO 100 20% 25V
C012	CE04W1HR33M	CAP. ELECTRO 0.33 20% 50V
C013	CE04W1H4R7M	CAP. ELECTRO 4.7 20% 50V
C014	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C015	C91-1203-05	CAP. CERAMIC 1.5 25V
C016	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C017	C91-1203-05	CAP. CERAMIC 1.5 25V
C018	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C024	CF92V1H332J	CAP. POLYESTER 3300P 5% 50V
C027	CS15E1E100M	CAP. TANTALUM 10 20% 25V
C028	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C029	CS15E1E100M	CAP. TANTALUM 10 20% 25V
C030	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C031	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C032	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C033	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C034	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C035	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C036	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C037	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C038	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C039	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C040	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C041	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C042	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C043	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C044	CF92V1H472J	CAP. POLYESTER 4700P 5% 50V
C045	CF92V1H472J	CAP. POLYESTER 4700P 5% 50V
C050	C092M2A104K	CAP. MYLAR 0.1 10% 100V
C051	C092M2A104K	CAP. MYLAR 0.1 10% 100V
C052	C90-0924-05	CAP. ELECTRO 330 50V
C053	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C054	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C055	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C056	C90-0924-05	CAP. ELECTRO 330 50V
C057	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C058	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C059	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C060	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C061	CC45CH1H470J	CAP. CERAMIC 47P 5% 50V
C062	C91-0595-05	CAP. POLYESTER 0.033 2% 50V
C063	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C064	CF92V1H102J	CAP. POLYESTER 1000P 5% 50V
C065	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C066	CF92V1H472J	CAP. POLYESTER 4700P 5% 50V
C067	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C068	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C069	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C070	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C071	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C072	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C073	CF92V1H224J	CAP. POLYESTER 0.22 5% 50V
C074	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C075	CE04W1E100M	CAP. ELECTRO 10 20% 25V
C076	CE04W1C471M	CAP. ELECTRO 470 20% 16V
D001	S1VB60	DIODE
D002	S1VB60	DIODE
D003	DSA1A2	DIODE
D004	DSA1A2	DIODE
D005	NO USE	
D006	RD13F(B2)	DIODE ZENER 13V
D007	MTZ9.1JC	DIODE ZENER 9V
D008	1SS132	DIODE
D009	RD13F(B2)	DIODE ZENER 13V
D010	MTZ9.1JC	DIODE ZENER 9V
D011	1SS132	DIODE
D012	MTZ4.7JA	DIODE ZENER 4.5V

REF.NO	PARTS NO	NAME & DESCRIPTION
D013	1SS132	DIODE
D014	1SZ59(T)	DIODE ZENER 6.25V
D015	1SZ59(T)	DIODE ZENER 6.25V
D016	1SS132	DIODE
D017	1SS132	DIODE
D018	1SS132	DIODE
D019	1SS132	DIODE
D020	1SS132	DIODE
D021	1SS132	DIODE
D022	1SS132	DIODE
D023	1SS132	DIODE
D024	1SS132	DIODE
D025	1SS132	DIODE
D026	1SS132	DIODE
D027	1SS132	DIODE
D028	MTZ5.1JB	DIODE ZENER 5V
D029	1SS132	DIODE
D030	MTZ5.1JB	DIODE ZENER 5V
D031	DSA1A2	DIODE
D032	DSA1A2	DIODE
D040	S1VB60	DIODE
D041	S1VB60	DIODE
D042	DSA1A2	DIODE
D043	DSA1A2	DIODE
D044	DSA1A2	DIODE
D045	DSA1A2	DIODE
D046	MTZ6.2JB	DIODE ZENER 6.1V
D047	1SS132	DIODE
D048	1SS132	DIODE
D049	1SS132	DIODE
D050	1SS132	DIODE
D051	RD10F(B2)	DIODE ZENER 10V
D052	RD10F(B2)	DIODE ZENER 10V
D053	1SS132	DIODE
D054	1SS132	DIODE
D055	1SS132	DIODE
D056	1SS132	DIODE
D057	1SS132	DIODE
D058	1SS132	DIODE
D060	1SS132	DIODE
D061	1SS132	DIODE
D062	1SS132	DIODE
D063	1SS132	DIODE
D064	1SS132	DIODE
D065	1SS132	DIODE
P003	E40-0273-05	PIN CONNECTOR 2 P
P004	E40-0273-05	PIN CONNECTOR 2 P
Q001	2SD613(E)	TR. SI, NPN
Q002	2SC2785(F)	TR. SI, NPN
Q003	2SC2785(F)	TR. SI, NPN
Q004	2SB905(D)	TR. SI, PNP
Q005	2SB633(E)	TR. SI, PNP
Q006	2SA1175(F)	TR. SI, PNP
Q007	2SA1175(F)	TR. SI, PNP
Q008	2SD1220(D)	TR. SI, NPN
Q009	2SC3064(F)	TR. SI, NPN
Q010	2SC2785(F)	TR. SI, NPN
Q011	2SC2785(F)	TR. SI, NPN
Q012	2SC2459(GR)	TR. SI, NPN
Q013	2SD1220(D)	TR. SI, NPN
Q014	2SK170(BL)	FET, N-CHANNEL
Q015	2SK170(BL)	FET, N-CHANNEL
Q016	2SK170(BL)	FET, N-CHANNEL
Q017	2SK170(BL)	FET, N-CHANNEL
Q020	2SK170(BL)	FET, N-CHANNEL
Q021	2SC2785(F)	TR. SI, NPN
Q022	2SD1220(D)	TR. SI, NPN
Q023	2SD1220(D)	TR. SI, NPN
R001	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R002	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R003	RD14DB3D471J	RES. CARBON 470 5% 2W
R004	RD14BB2E561J	RES. CARBON 560 5% 1/4W
R005	RD14DB2H512J	RES. CARBON 5.1K 5% 1/2W
R006	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R007	RD14DB2H2R7J	RES. CARBON 2.7 5% 1/2W
R008	RD14BB2C153J	RES. CARBON 15K 5% 1/6W
R009	RN14BC2E7501F	RES. METAL FILM 7.5K 1% 1/4W
R010	RN14BC2E7501F	RES. METAL FILM 7.5K 1% 1/4W
R011	RD14DB3D471J	RES. CARBON 470 5% 2W
R012	RD14BB2E561J	RES. CARBON 560 5% 1/4W
R013	RD14DB2H512J	RES. CARBON 5.1K 5% 1/2W
R014	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R015	RD14DB2H2R7J	RES. CARBON 2.7 5% 1/2W
R016	RD14BB2C153J	RES. CARBON 15K 5% 1/6W
R017	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R018	RN14BC2E3600F	RES. METAL FILM 360 1% 1/4W
R020	RN14BC2E3091F	RES. METAL FILM 3.09K 1% 1/4W
R021	RN14BC2E4301F	RES. METAL FILM 4.3K 1% 1/4W
R024	RD14BB2C153J	RES. CARBON 15K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	REF.NO	PARTS NO	NAME & DESCRIPTION
R025	RD14BB2C153J	RES. CARBON 15K 5% 1/6W	R130	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R026	RD14BB2E243J	RES. CARBON 24K 5% 1/4W	R131	RN14BC2E2202F	RES. METAL FILM 22K 1% 1/4W
R027	RD14BB2E121J	RES. CARBON 12K 5% 1/4W	R132	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R028	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W	R133	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R029	RD14BB2E181J	RES. CARBON 18K 5% 1/4W	R134	RD14BB2C103J	RES. CARBON 1K 5% 1/6W
R030	RN14BE2E3601D	RES. METAL FILM 3.6K 0.5% 1/4W	R135	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R031	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R136	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R032	RN14BC2E1003F	RES. METAL FILM 100K 1% 1/4W	R137	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R033	RN14BC2E3600F	RES. METAL FILM 360 1% 1/4W	R138	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R034	RD14BB2C151J	RES. CARBON 15K 5% 1/6W	R139	RD14DB3A330J	RES. CARBON 33 5% 1W
R035	RN14BC2E1102F	RES. METAL FILM 11K 1% 1/4W	R140	RD14DB3A330J	RES. CARBON 33 5% 1W
R036	RN14BE2E5101D	RES. METAL FILM 5.1K 0.5% 1/4W	R141	RD14DB2H102J	RES. CARBON 1K 5% 1/2W
R037	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R142	RD14DB2H102J	RES. CARBON 1K 5% 1/2W
R038	RN14BC2E1003F	RES. METAL FILM 100K 1% 1/4W	U001	TL082CP	IC
R039	RN14BC2E3600F	RES. METAL FILM 360 1% 1/4W	U002	NJM7815A	IC
R040	RD14BB2C221J	RES. CARBON 22K 5% 1/6W	U003	TL082CP	IC
R041	RN14BC2E1622F	RES. METAL FILM 16.2K 1% 1/4W	U006	NJM4558D	IC
R042	RN14BE2H1002D	RES. METAL FILM 10K 0.5% 1/2W	U007	TL082CP	IC
R045	RN14BE2H1002D	RES. METAL FILM 10K 0.5% 1/2W	U010	NJM7815A	IC
R047	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	U011	UPC7915HA	IC
R048	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	U012	NJM4558D	IC
R050	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	U013	TL082CP	IC
R051	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	U014	NJM555D	IC
R052	RN14BC2E1001F	RES. METAL FILM 1K 1% 1/4W	U015	TLP521-1(A)	PHOTO COUPLER
R053	RD14BB2E162J	RES. CARBON 1.6K 5% 1/4W	VR001	R12-1525-05	RES. SEMI FIXED 2K
R054	RN14BC2E4301F	RES. METAL FILM 4.3K 1% 1/4W	VR002	R12-4509-05	RES. SEMI FIXED 50K
R056	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W	VR003	R12-2516-05	RES. SEMI FIXED 5K
R058	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	VR004	R12-4509-05	RES. SEMI FIXED 50K
R059	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	VR005	R12-3533-05	RES. SEMI FIXED 10K
R060	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	VR006	R12-3534-05	RES. SEMI FIXED 20K
R061	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	VR007	R12-1524-05	RES. SEMI FIXED 2.5K
R062	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W	VR008	R12-4509-05	RES. SEMI FIXED 50K
R063	RD14BB2C473J	RES. CARBON 47K 5% 1/6W	VR009	R12-1524-05	RES. SEMI FIXED 2.5K
R064	RN14BC2E1002F	RES. METAL FILM 10K 1% 1/4W	VR010	R12-4509-05	RES. SEMI FIXED 50K
R065	RD14DB3A101J	RES. CARBON 100 5% 1W	VR011	R12-4509-05	RES. SEMI FIXED 50K
R067	RD14BB2C104J	RES. CARBON 100K 5% 1/6W	VR020	R12-3530-05	RES. SEMI FIXED 10K
R068	RN14BC2E1003F	RES. METAL FILM 100K 1% 1/4W			
R069	RN14BC2E4701F	RES. METAL FILM 4.7K 1% 1/4W			
R070	RN14BC2E1500F	RES. METAL FILM 150 1% 1/4W			
R071	RD14BB2C471J	RES. CARBON 47K 5% 1/6W			
R072	RN14BC2E6801F	RES. METAL FILM 6.8K 1% 1/4W			
R073	RN14BC2E1802F	RES. METAL FILM 18K 1% 1/4W			
R074	RD14BB2C104J	RES. CARBON 100K 5% 1/6W			
R075	RD14BB2C104J	RES. CARBON 100K 5% 1/6W			
R076	RN14BC2E1003F	RES. METAL FILM 100K 1% 1/4W			
R077	RN14BC2E4701F	RES. METAL FILM 4.7K 1% 1/4W			
R078	RN14BC2E1500F	RES. METAL FILM 150 1% 1/4W			
R079	RD14BB2C471J	RES. CARBON 47K 5% 1/6W			
R080	RN14BC2E6801F	RES. METAL FILM 6.8K 1% 1/4W			
R081	RN14BC2E1802F	RES. METAL FILM 18K 1% 1/4W			
R082	RN14BC2E5101F	RES. METAL FILM 5.1K 1% 1/4W			
R083	RD14BB2C104J	RES. CARBON 100K 5% 1/6W			
R084	RN14BC2E1003F	RES. METAL FILM 100K 1% 1/4W			
R085	RN14BC2E82R0F	RES. METAL FILM 82.0 1% 1/4W			
R086	RD14BB2C101J	RES. CARBON 100 5% 1/6W			
R087	RN14BC2E5101F	RES. METAL FILM 5.1K 1% 1/4W			
R088	RN14BC2E1002F	RES. METAL FILM 10K 1% 1/4W			
R089	RD14BB2C333J	RES. CARBON 33K 5% 1/6W			
R090	RD14BB2C333J	RES. CARBON 33K 5% 1/6W			
R091	NO USE				
R092	RD14BB2C153J	RES. CARBON 15K 5% 1/6W	D201	S1VB60	DIODE
R093	RD14BB2C473J	RES. CARBON 47K 5% 1/6W	D202	S1VB60	DIODE
R094	RD14BB2C473J	RES. CARBON 47K 5% 1/6W	P201	E40-0673-05	PIN CONNECTOR 6 P
R100	RD14BB2E101J	RES. CARBON 100 5% 1/4W	P202	E40-0373-05	PIN CONNECTOR 3 P
R101	RD14BB2E101J	RES. CARBON 100 5% 1/4W	P203	E40-0373-05	PIN CONNECTOR 3 P
R102	RD14DB2H392J	RES. CARBON 3.9K 5% 1/2W	P204	E40-0673-05	PIN CONNECTOR 6 P
R103	RD14BB2C103J	RES. CARBON 10K 5% 1/6W			
R104	RD14BB2C153J	RES. CARBON 15K 5% 1/6W	U201	LM79L05ACZ	REGULATOR
R105	RD14BB2C123J	RES. CARBON 12K 5% 1/6W	U202	LM79L05ACZ	REGULATOR
R106	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W			
R107	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W			
R108	RN14BC2E4703F	RES. METAL FILM 470K 1% 1/4W			
R109	RD14BB2C104J	RES. CARBON 100K 5% 1/6W			
R110	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W			
R111	RN14BC2E2202F	RES. METAL FILM 22K 1% 1/4W			
R112	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W			
R113	RN14BK2C3303F	RES. METAL FILM 330K 1% 1/6W			
R114	RD14BB2C470J	RES. CARBON 47 5% 1/6W			
R115	RD14BB2C104J	RES. CARBON 100K 5% 1/6W			
R116	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W			
R117	RD14BB2C224J	RES. CARBON 220K 5% 1/6W			
R118	RD14BB2C103J	RES. CARBON 10K 5% 1/6W			
R119	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W			
R120	RD14DB3D472J	RES. CARBON 4.7K 5% 2W			
R121	RD14BB2C104J	RES. CARBON 100K 5% 1/6W			
R122	R92-1076-05	RES. METAL GLAZE27M 5% 1/2W			
R123	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W			
R124	RD14BB2C105J	RES. CARBON 1M 5% 1/6W			
R127	RD14BB2C911J	RES. CARBON 910 5% 1/6W			
R128	RN14BC2E5601F	RES. METAL FILM 5.6K 1% 1/4W			
R129	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W			

UPPLIED FOR ONLY "D" TYPE

REF.NO	PARTS NO	NAME & DESCRIPTION
C201	CE04W1E471M	CAP. ELECTRO 470 20% 25V
C202	CE04W1E470M	CAP. ELECTRO 47 20% 25V
C203	CE04W1E471M	CAP. ELECTRO 470 20% 25V
C204	CE04W1E470M	CAP. ELECTRO 47 20% 25V
C205	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C206	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C207	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C208	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C209	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C210	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C211	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C212	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
D201	S1VB60	DIODE
D202	S1VB60	DIODE
P201	E40-0673-05	PIN CONNECTOR 6 P
P202	E40-0373-05	PIN CONNECTOR 3 P
P203	E40-0373-05	PIN CONNECTOR 3 P
P204	E40-0673-05	PIN CONNECTOR 6 P
U201	LM79L05ACZ	REGULATOR
U202	LM79L05ACZ	REGULATOR

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REF.NO	PARTS NO	NAME & DESCRIPTION
	E33-4072-00	WIRE ASSY
	J25-5070-02	PCB (UNMOUNTED)
	R92-1061-05	JUMPING RES.
		ZERO OHM
C001	CE04CW1A470M	CAP. ELECTRO 47 20% 10V
C002	CE04CW1A100M	CAP. ELECTRO 10 20% 10V
C003	C91-1204-05	CAP. CERAMIC 0.22 150V
C004	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C005	CF92V1H104J	CAP. POLYESTER 0.1 5% 50V
C006	CM93BD2A101J	CAP. MICA 100P 5% 100V
C007	CF92V1H223J	CAP. POLYESTER 0.022 5% 50V
C031	CE04CW1A470M	CAP. ELECTRO 47 20% 10V
C032	CE04CW1A100M	CAP. ELECTRO 10 20% 10V
C033	C91-1204-05	CAP. CERAMIC 0.22 150V
C034	CF92V1H473J	CAP. POLYESTER 0.047 5% 50V
C035	CF92V1H104J	CAP. POLYESTER 0.1 5% 50V
C036	CM93BD2A101J	CAP. MICA 100P 5% 100V
C037	CF92V1H223J	CAP. POLYESTER 0.022 5% 50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
D001	GL9D03D	DIODE
D002	GL9D03D	DIODE
D003	GL9D03D	DIODE
D004	GL9D03D	DIODE
D005	LT9002D	DIODR
D032	GL9D03D	DIODE
D033	GL9D03D	DIODE
D034	GL9D03D	DIODE
D035	LT9002D	DIODR
P003	E31-2513-15	LEAD WIRE WITH CONNECTOR
P004	E31-2512-15	LEAD WIRE WITH CONNECTOR
P204	E31-2520-15	LEAD WIRE WITH CONNECTOR
R001	RN14BK2C4703F	RES. METAL FILM 470K 1% 1/6W
R002	RN14BK2C1103F	RES. METAL FILM 110K 1% 1/6W
R003	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R004	RN14BE2E1502F	RES. METAL FILM 15K 1% 1/4W
R005	RN14BE2E1002F	RES. METAL FILM 10K 1% 1/4W
R006	RD14BB2C680J	RES. CARBON 68 5% 1/6W
R018	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R019	NO USE	
R031	RN14BK2C4703F	RES. METAL FILM 470K 1% 1/6W
R032	RN14BK2C1103F	RES. METAL FILM 110K 1% 1/6W
R033	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R034	RN14BE2E1502F	RES. METAL FILM 15K 1% 1/4W
R035	RN14BE2E1002F	RES. METAL FILM 10K 1% 1/4W
R036	RD14BB2C680J	RES. CARBON 68 5% 1/6W
R037	NO USE	
R038	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R048	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R049	NO USE	
U001	TSC7107CPL-A	IC
U002	LM336Z2.5	IC
U031	TSC7107CPL-A	IC
U032	LM336Z2.5	IC
VR001	R12-3518-05	RES. SEMI FIXED 10K B
VR002	R12-0558-05	RES. SEMI FIXED 500
VR031	R12-3518-05	RES. SEMI FIXED 10K B
VR032	R12-0558-05	RES. SEMI FIXED 500

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REF.NO	PARTS NO	NAME & DESCRIPTION
	J19-1641-14	HOLDER FOR LED
	J25-5061-13	PCB (UNMOUNTED)
C001	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C002	CE04W1C101M	CAP. ELECTRO 100 20% 16V
C003	CK45B1H102K	CAP. CERAMIC 1000P 10% 50V
C004	CF92V1H103J	CAP. POLYESTER 0.01 5% 50V
C005	CE04W1C101M	CAP. ELECTRO 100 20% 16V
C006	CE04W1C101M	CAP. ELECTRO 100 20% 16V
C007	CE04W1H470M	CAP. ELECTRO 47 20% 50V
D001	DSA1A2	DIODE
D002	DSA1A2	DIODE
D003	DSA1A2	DIODE
D004	DSA1A2	DIODE

REF.NO	PARTS NO	NAME & DESCRIPTION
D005	1SZ59(T)	DIODE ZENER 6.25V
D006	1SS132	DIODE
D007	1SS132	DIODE
D008	1SS132	DIODE
D009	1SS132	DIODE
D010	CSM2B2A30	SCR
D011	DSA1A2	DIODE
D012	1SS132	DIODE
D013	LN222RP	DIODE
D014	DSA1A2	DIODE
D015	DSA1A2	DIODE

REF.NO	PARTS NO	NAME & DESCRIPTION
P005	E40-0273-05	PIN CONNECTOR 2 P
P006	E40-1373-05	PIN CONNECTOR 13 P
P007	E40-0273-05	PIN CONNECTOR 2 P
P008	E40-0373-05	PIN CONNECTOR 3 P
P009	E40-0273-05	PIN CONNECTOR 2 P
P010	E40-0273-05	PIN CONNECTOR 2 P
P011	E40-0273-05	PIN CONNECTOR 2 P
P012	E40-0273-05	PIN CONNECTOR 2 P

REF.NO	PARTS NO	NAME & DESCRIPTION
Q001	2SD1220(D)	TR. SI, NPN
Q002	2SA1175(F)	TR. SI, PNP
Q003	2SC2785(F)	TR. SI, NPN
Q004	2SC2785(F)	TR. SI, NPN

REF.NO	PARTS NO	NAME & DESCRIPTION
R001	RD14DB3A102J	RES. CARBON 1K 5% 1W
R002	RD14DB3A102J	RES. CARBON 1K 5% 1W
R003	RN14BE2E3831D	RES. METAL FILM 3.83K 0.5% 1/4W
R005	RN14BC2E2200F	RES. METAL FILM 220 1% 1/4W
R006	RN14BC2E1000F	RES. METAL FILM 100 1% 1/4W
R007	RN14BC2H7500F	RES. METAL FILM 750 1% 1/2W
R008	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R009	RD14BB2C392J	RES. CARBON 3.9K 5% 1/6W
R010	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R011	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R012	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R013	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R014	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R015	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R016	RD14BB2C222J	RES. CARBON 22K 5% 1/6W
R017	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R018	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R019	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R020	RD14BB2C362J	RES. CARBON 3.6K 5% 1/6W
R021	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R022	RD14BB2C621J	RES. CARBON 620 5% 1/6W
R023	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R024	RD14DB2H222J	RES. CARBON 2.2K 5% 1/2W
R025	RD14DB2H102J	RES. CARBON 1K 5% 1/2W
R026	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R027	RD14BB2C512J	RES. CARBON 5.1K 5% 1/6W
R028	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R029	RD14BB2E162J	RES. CARBON 1.6K 5% 1/4W
R030	RD14BB2C103J	RES. CARBON 10K 5% 1/6W

REF.NO	PARTS NO	NAME & DESCRIPTION
S001	S40-1519-05	PUSH SWITCH
S002	S40-1518-05	PUSH SWITCH
S003	S40-1518-05	PUSH SWITCH

REF.NO	PARTS NO	NAME & DESCRIPTION
U001	NJM311D	IC
U002	NJM4558D	IC
VR001	R12-1524-05	RES. SEMI FIXED 2.5K

PARTS LIST

UNCOMMON PARTS X73-1550, X73-1560

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
	U4	LM308AN	IC	*	*	*		
	U4	OP07DP	IC				*	*
	U5	LM308AN	IC	*	*	*		
	U5	OP07DP	IC				*	*
	D35	MTZ8.2JC	DIODE, ZENER	*	*	*		
	D36	MTZ8.2JC	DIODE, ZENER	*	*	*		
	VR5	R12-3530-05	RES. SEMI-FIXED 10k Ω (only X73-1550)	*	*	*	*	*
	VR5	R12-3533-05	RES. SEMI-FIXED 10k Ω (only X73-1560)	*	*	*	*	*
	VR6	R12-3529-05	RES. SEMI-FIXED 20k Ω (only X73-1550)	*	*	*	*	*
	VR6	R12-3534-05	RES. SEMI-FIXED 20k Ω (only X73-1560)	*	*	*	*	*
	VR43	RN14BE2H1802D	RES. METAL FILM 18k Ω $\pm$ 0.5% 1/2W	*	*	*		
	R13	CE04W1E4R7M	CAP. ELECTRO. (only X73-1550) 4.7 μ F $\pm$ 20% 25V	*	*	*	*	*
	R13	CE04W1E4R7M	CAP. ELECTRO. (only X73-1560) 4.7 μ F $\pm$ 20% 25V	*		*	*	*
	R13	CE04W1E101M	CAP. ELECTRO. (only X73-1560) 100 μ F $\pm$ 20% 25V		*			
	R19	CS15E1H2R2M	CAP. TANTALUM 2.2 μ F $\pm$ 20% 50V	*		*		
	R19	CS15E1H1R0M	CAP. TANTALUM 1 μ F $\pm$ 20% 50V		*			
	R19	CS15E1H4R7M	CAP. TANTALUM 4.7 μ F $\pm$ 20% 50V				*	*
	R43	RN14BE2H8061D	RES. METAL FILM 8.06k Ω $\pm$ 0.5% 1/2W				*	*
	R44	RN14BE2H1802D	RES. METAL FILM 18k Ω $\pm$ 0.5% 1/2W		*			
	R46	RN14BE2H3740D	RES. METAL FILM 374 Ω $\pm$ 0.5% 1/2W	*				*
	R46	RN14BE2H5230D	RES. METAL FILM 523 Ω $\pm$ 0.5% 1/2W		*	*	*	
	R49	RN14BC2E2701F	RES. METAL FILM 2.7k Ω $\pm$ 1% 1/4W	*	*	*		
	R49	RN14BC2E4702F	RES. METAL FILM 47k Ω $\pm$ 1% 1/4W				*	*
	R55	RN14BC2E4300F	RES. METAL FILM 430 Ω $\pm$ 1% 1/4W	*				*
	R55	RN14BC2E6200F	RES. METAL FILM 620 Ω $\pm$ 1% 1/4W		*	*	*	
	R57	RD14BB2C101J	RES. CARBON 100 Ω $\pm$ 5% 1/6W	*				*
	R57	RD14BB2C621J	RES. CARBON 620 Ω $\pm$ 5% 1/6W		*	*	*	
	R66	RN14BC2E7150F	RES. METAL FILM 715 Ω $\pm$ 1% 1/4W	*				*
	R66	RN14BC2E1001F	RES. METAL FILM 1k Ω $\pm$ 1% 1/4W		*	*	*	
	R95	RD14BB2E750J	RES. CARBON 75 Ω $\pm$ 5% 1/4W	*		*		
	R95	RD14BB2E151J	RES. CARBON 150 Ω $\pm$ 5% 1/4W		*			
	R95	RD14BB2E330J	RES. CARBON 33 Ω $\pm$ 5% 1/4W				*	*
	C20	CQ92P2A332J	CAP. MYLAR 3300P $\pm$ 5% 100V	*	*	*		
	C20	CQ92P2A471J	CAP. MYLAR 470P $\pm$ 5% 100V				*	*
	C21	CC45CH1H390J	CAP. CERAMIC 39P $\pm$ 5% 50V	*	*	*		
	C23	CC45CH1H390J	CAP. CERAMIC 39P $\pm$ 5% 50V	*	*	*		

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Fig. & Index No.	Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
	U3	LM339N	IC		*			
	U4	MC14011BCP	IC		*			
	Q1	DTC144F	TR		*			
	Q2	DTA124F	TR		*			
	Q3	DTA124F	TR		*			
	Q4	2SK117 (GR)	FET, N-CHANNEL		*			
	D6	1SS132	DIODE		*			
	D7	1S1544A	DIODE		*			
	D8	1S1544A	DIODE		*			
	VR3	R12-0544-05	RES. SEMI-FIXED 220 Ω		*			
	R7	RD14BB2C391J	RES. CARBON 390 Ω $\pm$ 5% 1/6W	*		*	*	*

PARTS LIST

Fig. & Index No.	Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
	R9	RD14BB2C123J	RES. CARBON 12kΩ ± 5% 1/6W		*			
	R10	RD14BB2C333J	RES. CARBON 33kΩ ± 5% 1/6W		*			
	R11	RD14BB2C104J	RES. CARBON 100kΩ ± 5% 1/6W		*			
	R12	RD14BB2C104J	RES. CARBON 100kΩ ± 5% 1/6W		*			
	R13	RD14BB2C103J	RES. CARBON 10kΩ ± 5% 1/6W		*			
	R15	RD14BB2C301J	RES. CARBON 300Ω ± 5% 1/6W		*			
	R16	RD14BB2C301J	RES. CARBON 300Ω ± 5% 1/6W		*			
	R17	RD14BB2C103J	RES. CARBON 10kΩ ± 5% 1/6W		*			
	R18	RD14BB2C104J	RES. CARBON 100kΩ ± 5% 1/6W		*			
	R19	RN14BC2E1601F	RES. METAL FILM 1.6kΩ ± 1% 1/4W		*			
	R20	RN14BC2E1502F	RES. METAL FILM 15kΩ ± 1% 1/4W	*		*		
	R20	RN14BC2E1603F	RES. METAL FILM 160kΩ ± 1% 1/4W		*			
	R20	RN14BC2E4701F	RES. METAL FILM 4.7kΩ ± 1% 1/4W				*	*
	R21	RN14BK2C2201F	RES. METAL FILM 2.2kΩ ± 1% 1/6W		*			
	R22	RN14BK2C1301F	RES. METAL FILM 1.3kΩ ± 1% 1/6W		*			
	R23	RN14BK2C1301F	RES. METAL FILM 1.3kΩ ± 1% 1/6W		*			
	R24	RN14BK2C2201F	RES. METAL FILM 2.2kΩ ± 1% 1/6W		*			
	R50	RN14BC2E9760F	RES. METAL FILM 976kΩ ± 1% 1/4W		*	*	*	
	R50	RN14BC2E1501F	RES. METAL FILM 1.5kΩ ± 1% 1/4W	*				*
	C8	C91-1205-05	CAP. CERAMIC 0.1 50V		*			

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Fig. & Index No.	Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
	R4	RN14BE2H1002D	RES. METAL FILM 10kΩ ± 0.5% 1/2W	*				
	R4	RN14BE2H2402D	RES. METAL FILM 24kΩ ± 0.5% 1/2W		*			
	R4	RN14BE2H2321D	RES. METAL FILM 2.32kΩ ± 0.5% 1/2W			*		

SCHEMATIC DIAGRAM

Ref. No.	Parts No.	Name & Description	PD6-20	PD6-30	PD18-20	PD18-30	PD35-20
			D	D	D	D	D
C001	C90-0922-05	100000 35V				*	*
C001	C90-0921-05	68000 35V			*	*	*
C001	C90-0923-05	39000 63V					*
C001	C90-0953-05	68000 25V	*	*			*
C001	C90-0952-05	150000 25V	*	*	*		*
C002	C90-0919-05	1000 50V	*	*	*	*	*
C003	C90-0920-05	1000 50V	*	*	*	*	*
C004	C91-0594-05	0.1 ± 10% 250V	*	*	*	*	*
C005	C91-0593-05	0.1 ± 20% 250V	*	*	*	*	*
C006	C91-0596-05	0.2 ± 20% 250V	*	*	*	*	*
C007	CF93AN2E334K	0.33 ± 10% 250V	*	*	*	*	*
C008	CF93AN2E334K	0.33 ± 10% 250V	*	*	*	*	*
C009	CF93AN2E334K	0.33 ± 10% 250V	*	*	*	*	*
C010	CE04W1E101M	100 ± 20% 25V	*	*	*	*	*
C011	CE04W1E101M	100 ± 20% 25V	*	*	*	*	*
C012	C092M2A472J	4700P ± 5% 100V	*	*	*	*	*
C014	CF92V1H473J	0.047 50V	*	*	*	*	*
D001	CP08C				*	*	*
D001	CO08C		*	*	*	*	*
D002	CP08C				*	*	*
D002	CO08C		*	*	*	*	*
D003	P20C		*			*	*
D003	O810				*	*	*
D003	Q20C		*		*	*	*
D004	P20C		*	*	*	*	*
D004	O810			*	*	*	*
D004	Q20C		*	*	*	*	*
D005	P19C		*	*	*	*	*
D006	P19C		*	*	*	*	*
D007	P19C		*	*	*	*	*
D008	AR4133S		*	*	*	*	*
D009	AR4133S		*	*	*	*	*
D010	BG4133S		*	*	*	*	*
D011	ERZC14DK431		*	*	*	*	*
D014	RD15F (B2)		*	*	*	*	*
D015	RD15F (B2)		*	*	*	*	*
D016	DSA1A2		*	*	*	*	*
D016	VO6C				*	*	*
Q001	2SC2608 (Y)		*	*	*	*	*
Q002	2SC2608 (Y)		*	*	*	*	*
Q003	2SC2608 (Y)		*	*	*	*	*
Q004	2SC2608 (Y)		*	*	*	*	*
Q005	2SC2608 (Y)		*	*	*	*	*
Q006	2SC2608 (Y)		*	*	*	*	*
Q007	2SC2581 (O)		*	*	*	*	*
Q008	2SA1106 (O)		*	*	*	*	*
Q009	2SC3066 (F, G)		*	*	*	*	*
Q010	2SK170 (BL)		*	*	*	*	*
R001	RW98A3HOR1J	0.1 ± 5% 5W	*	*	*	*	*
R002	RW98A3HOR1J	0.1 ± 5% 5W	*	*	*	*	*
R003	RW98A3HOR1J	0.1 ± 5% 5W	*	*	*	*	*
R004	RW98A3HOR1J	0.1 ± 5% 5W	*	*	*	*	*
R005	RW98A3HOR1J	0.1 ± 5% 5W	*	*	*	*	*
R006	RW98A3HOR1J	0.1 ± 5% 5W	*	*	*	*	*
R007	R92-1121-05	100 ± 5% 1/2W	*	*	*	*	*
R007	RD14DB2H101J	100 ± 5% 1/2W	*	*	*	*	*
R008	RD14BB2E152J	1.5k ± 5% 1/4W	*	*	*	*	*
R008	RD14BB2E821J	820 ± 5% 1/4W	*	*	*	*	*
R009	R92-1120-05	33 ± 5% 1/2W	*	*	*	*	*
R009	RD14DB2H101J	100 ± 5% 1/2W	*	*	*	*	*
R010	R92-1074-05	0.012 ± 5% 40W	*	*	*	*	*
R010	R92-1129-05	0.025 ± 5% 40W	*	*	*	*	*
R011	RS14AB3A330J	33 ± 5% 1W	*	*	*	*	*
R012	RS14AB3A330J	33 ± 5% 1W	*	*	*	*	*
R013	RS14AB3A330J	33 ± 5% 1W	*	*	*	*	*
R014	RW26G3K471K	470 ± 10% 10W	*	*	*	*	*
R014	RW26G4C471J	470 ± 5% 20W	*	*	*	*	*
R015	RS14AB3F102J	1k ± 5% 3W	*	*	*	*	*
R016	RS14AB3F102J	1k ± 5% 3W	*	*	*	*	*
R017	RD14BB2C102J	1k ± 5% 1/6W	*	*	*	*	*
R018	RD14BB2C102J	1k ± 5% 1/6W	*	*	*	*	*
R019	R92-1117-05	3.9 ± 5% 1/2W	*	*	*	*	*
R019	R92-1056-05	2.2 ± 5% 1/2W	*	*	*	*	*
R019	RD14DB2H5R6J	5.6 ± 5% 1/2W	*	*	*	*	*
R020	RS14AB3D561J	560 ± 5% 2W	*	*	*	*	*
R020	RW26G4C221K	220 ± 10% 20W	*	*	*	*	*
R021	RD14BB2E243J	24k ± 5% 1/4W	*	*	*	*	*
R022	RD14BB2C102J	1k ± 5% 1/6W	*	*	*	*	*
U203	μPC7805H	IC	*	*	*	*	*
U204	μPC7805H	IC	*	*	*	*	*

Table 1

X73-1550, X73-1560

Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
U4	LM308AN		*	*	*	*	*
U4	OP07DP					*	*
U5	LM308AN		*	*	*	*	*
U5	OP07DP					*	*
D35	MTZ8.2JC		*	*	*	*	*
D36	MTZ8.2JC		*	*	*	*	*
VR5	R12-3530-05	10kΩ (only X73-1550)	*	*	*	*	*
VR5	R12-3533-05	10kΩ (only X73-1560)	*	*	*	*	*
VR6	R12-3529-05	20kΩ (only X73-1550)	*	*	*	*	*
VR6	R12-3534-05	20kΩ (only X73-1560)	*	*	*	*	*
R43	RN14BE2H1802D	18kΩ ± 0.5% 1/2W	*	*	*	*	*
R43	RN14BE2H8061D	8.06kΩ ± 0.5% 1/2W				*	*
R44	RN14BE2H1802D	18kΩ ± 0.5% 1/2W	*	*	*	*	*
R46	RN14BE2H3740D	3740 ± 0.5% 1/2W	*	*	*	*	*
R46	RN14BE2H5230D	5230 ± 0.5% 1/2W	*	*	*	*	*
R49	RN14BC2E2701F	2.7kΩ ± 1% 1/4W	*	*	*	*	*
R49	RN14BC2E4702F	47kΩ ± 1% 1/4W	*	*	*	*	*
R55	RN14BC2E4300F	4300 ± 1% 1/4W	*	*	*	*	*
R55	RN14BC2E6200F	6200 ± 1% 1/4W	*	*	*	*	*
R57	RD14BB2C101J	1000 ± 5% 1/6W	*	*	*	*	*
R57	RD14BB2C621J	6200 ± 5% 1/6W	*	*	*	*	*
R66	RN14BC2E7150F	7150 ± 1% 1/4W	*	*	*	*	*
R66	RN14BC2E1001F	1kΩ ± 1% 1/4W	*	*	*	*	*
R95	RD14BB2E750J	750 ± 5% 1/4W	*	*	*	*	*
R95	RD14BB2E151J	1500 ± 5% 1/4W	*	*	*	*	*
R95	RD14BB2E330J	330 ± 5% 1/4W	*	*	*	*	*
C13	CE04W1E4R7M	4.7μF ± 20% 25V	*	*	*	*	*
C13	CE04W1E4R7M	4.7μF ± 20% 25V	*	*	*	*	*
C13	CE04W1E101M	100μF ± 20% 25V	*	*	*	*	*
C19	CS15E1H2R2M	2.2μF ± 20% 50V	*	*	*	*	*
C19	CS15E1H1R0M	1μF ± 20% 50V	*	*	*	*	*
C19	CS15E1H4R7M	4.7μF ± 20% 50V	*	*	*	*	*
C20	CQ92P2A332J	3300P ± 5% 100V	*	*	*	*	*
C20	CQ92P2A471J	470P ± 5% 100V	*	*	*	*	*
C21	CC45CH1H390J	39P ± 5% 50V	*	*	*	*	*
C23	CC45CH1H390J	39P ± 5% 50V	*	*	*	*	*

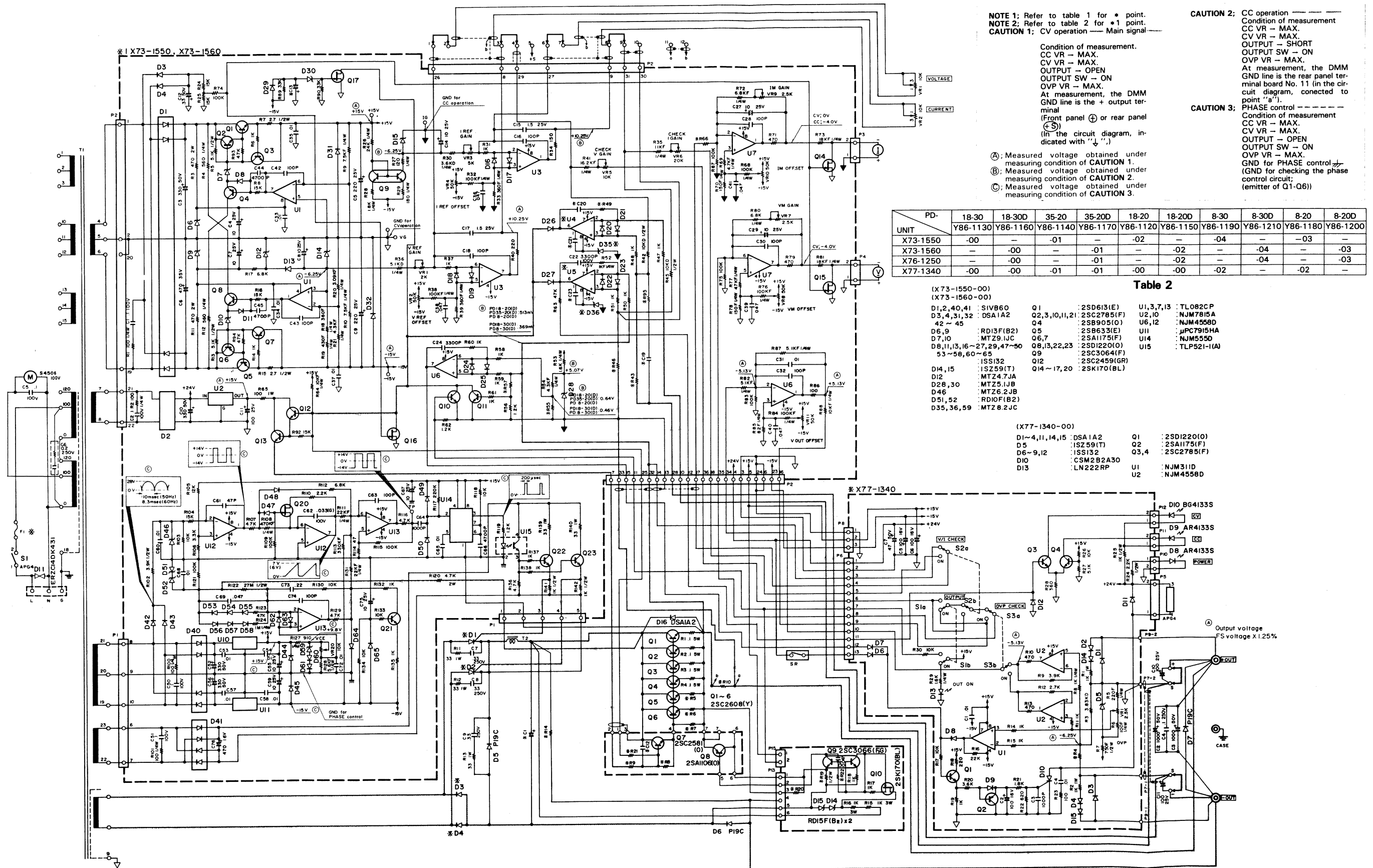
X76-1250

Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
U3	LM339N		*	*	*	*	*
U4	MC14011BCP		*	*	*	*	*
Q1	DTC144F		*	*	*	*	*
Q2	DTA124F		*	*	*	*	*
Q3	DTC124F		*	*	*	*	*
Q4	2SK117 (GR)		*	*	*	*	*
D6	1SS132		*	*	*	*	*
D7	1S1544A		*	*	*	*	*
D8	1S1544A		*	*	*	*	*
VR3	R12-0544-05	220Ω	*	*	*	*	*
R7	RD14BB2C391J	3900 ± 5% 1/6W	*	*	*	*	*
R9	RD14BB2C123J	12kΩ ± 5% 1/6W	*	*	*	*	*
R10	RD14BB2C333J	33kΩ ± 5% 1/6W	*	*	*	*	*
R11	RD14BB2C104J	100kΩ ± 5% 1/6W	*	*	*	*	*
R12	RD14BB2C104J	100kΩ ± 5% 1/6W	*	*	*	*	*
R13	RD14BB2C103J	10kΩ ± 5% 1/6W	*	*	*	*	*
R15	RD14BB2C301J	3000 ± 5% 1/6W	*	*	*	*	*
R16	RD14BB2C301J	3000 ± 5% 1/6W	*	*	*	*	*
R17	RD14BB2C103J	10kΩ ± 5% 1/6W	*	*	*	*	*
R18	RD14BB2C104J	100kΩ ± 5% 1/6W	*	*	*	*	*
R19	RN14BC2E1601F	1.6kΩ ± 1% 1/4W	*	*	*	*	*
R20	RN14BC2E1502F	15kΩ ± 1% 1/4W	*	*	*	*	*
R20	RN14BC2E1603F	160kΩ ± 1% 1/4W	*	*	*	*	*
R20	RN14BC2E4701F	4.7kΩ ± 1% 1/4W	*	*	*	*	*
R21	RN14BK2C2201F	2.2kΩ ± 1% 1/6W	*	*	*	*	*
R22	RN14BK2C1301F	1.3kΩ ± 1% 1/6W	*	*	*	*	*
R23	RN14BK2C1301F	1.3kΩ ± 1% 1/6W	*	*	*	*	*
R24	RN14BK2C2201F	2.2kΩ ± 1% 1/6W	*	*	*	*	*
R50	RN14BC2E9760F	9760 ± 1% 1/4W	*	*	*	*	*
R50	RN14BC2E1501F	1.5kΩ ± 1% 1/4W	*	*	*	*	*
C8	C91-1205-05	0.1μF 50V	*	*	*	*	*

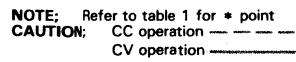
X77-1340

Ref. No.	Parts No.	Name & Description	-00	-01	-02	-03	-04
R4	RN14BE2H1002D	10kΩ ± 0.5% 1/2W	*	*	*	*	*
R4	RN14BE2H2402D	24kΩ ± 0.5% 1/2W	*	*	*	*	*
R4	RN14BE2H2321D	2.32kΩ ± 0.5% 1/2W	*	*	*	*	*

SCHEMATIC DIAGRAM



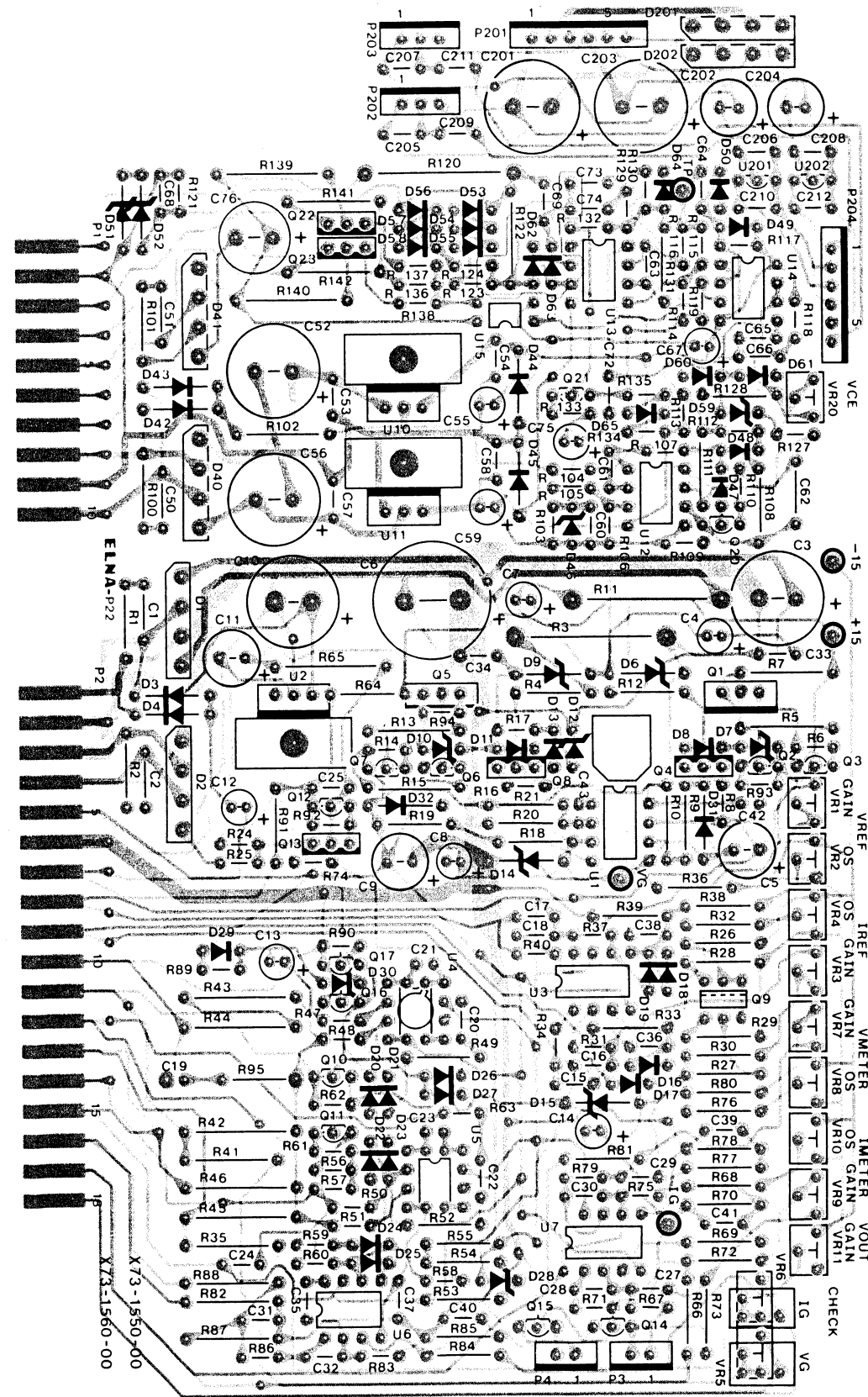
SCHEMATIC DIAGRAM



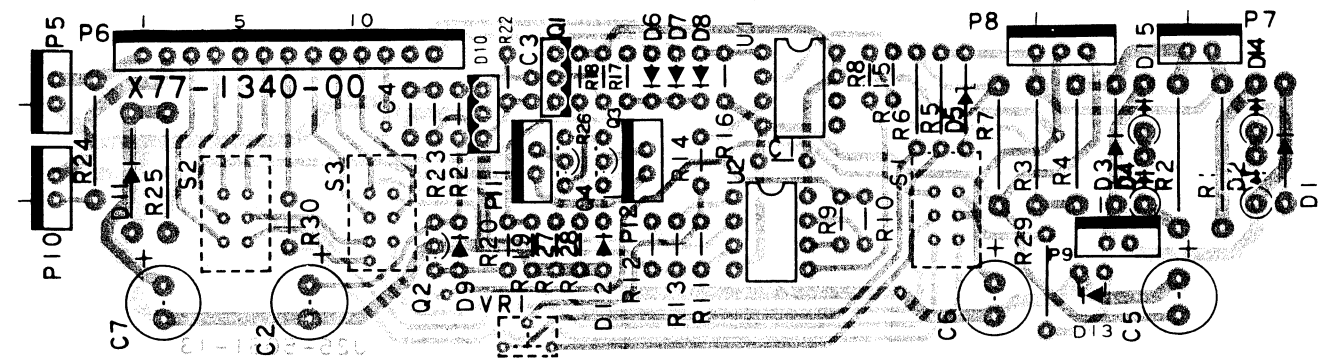
Note: Refer to table 1 for * point.

P.C. BOARD

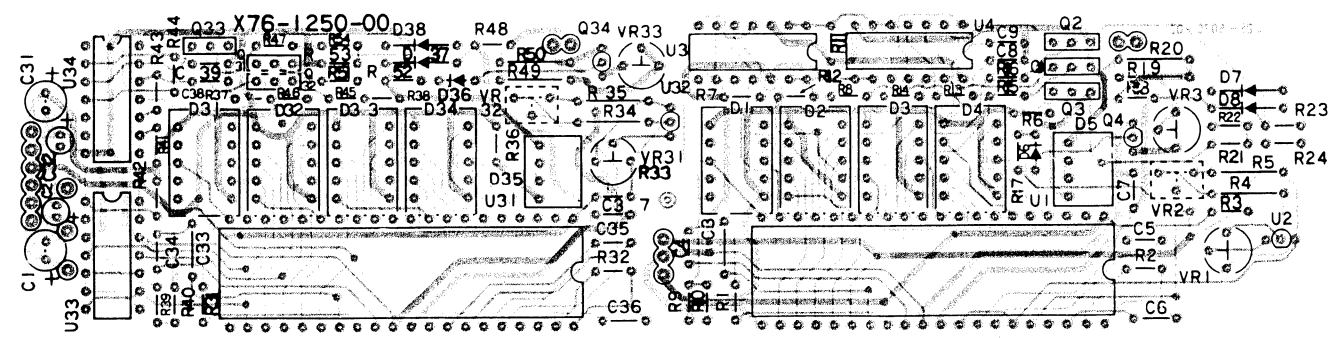
AMPLIFIER UNIT (X73-1550)
(X73-1560)



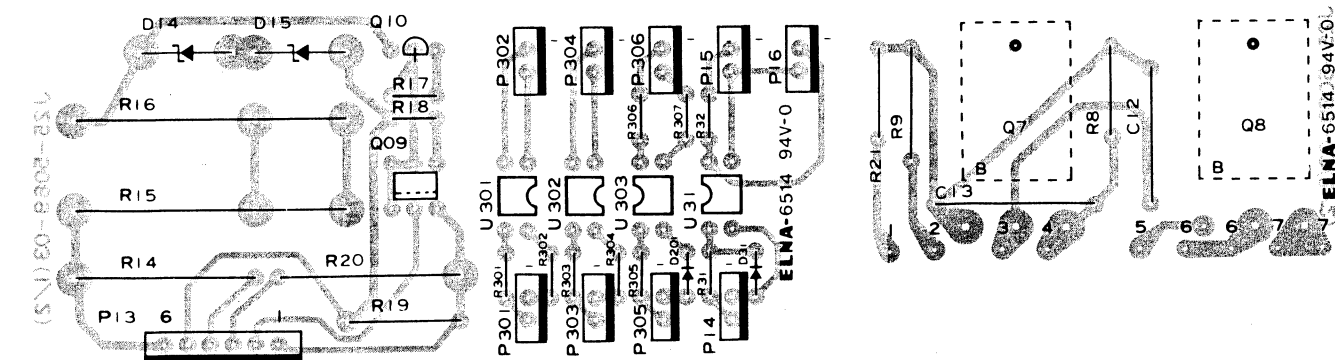
OVP UNIT (X77-1340)



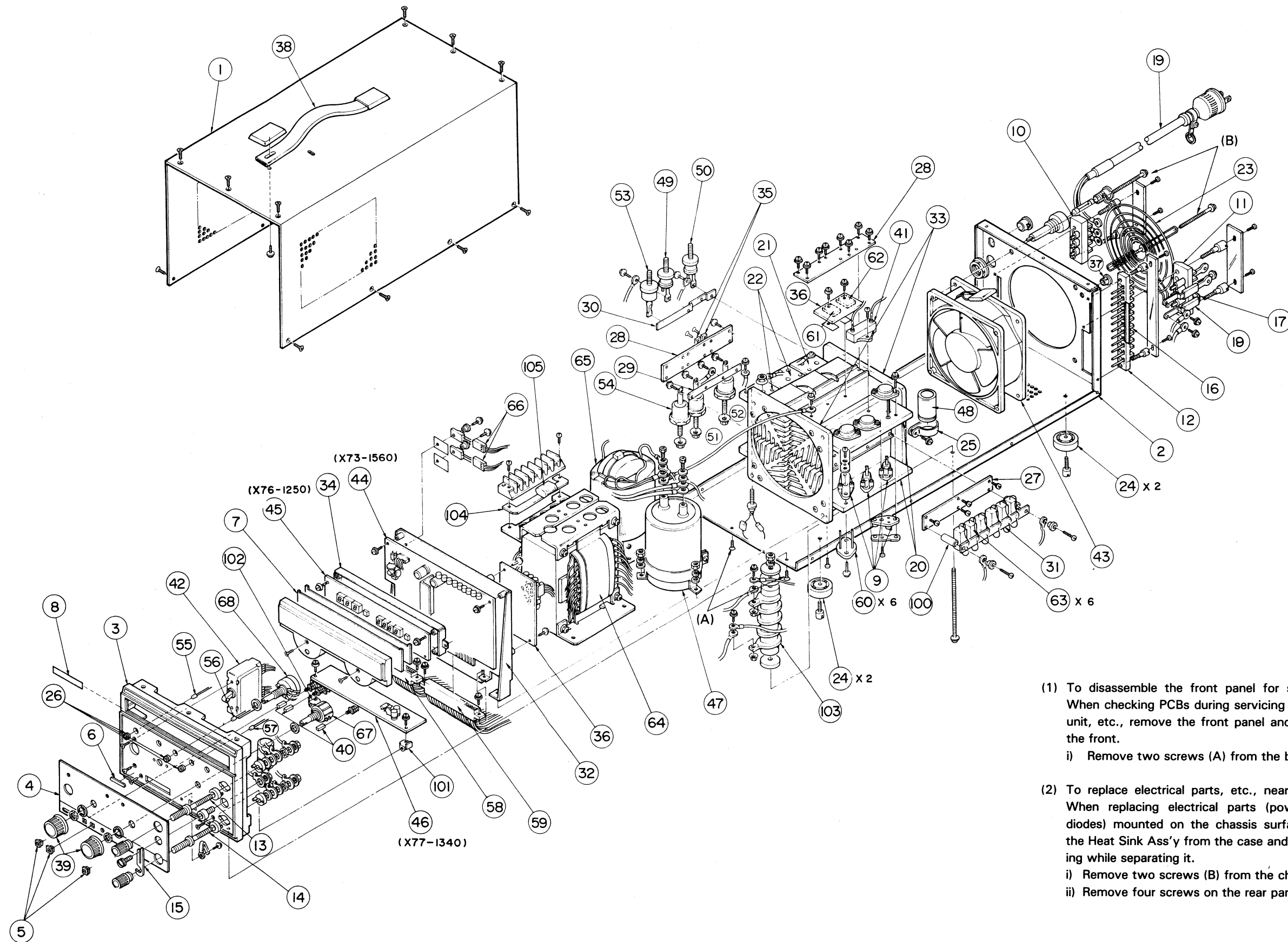
DPM UNIT (X76-1250)



(Y86-11)



DISASSEMBLY



(1) To disassemble the front panel for servicing PCBs:
When checking PCBs during servicing AMP unit, OVP
unit, etc., remove the front panel and lean it toward
the front.

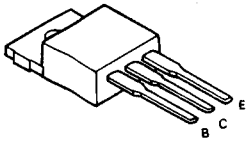
i) Remove two screws (A) from the bottom case.

(2) To replace electrical parts, etc., near the heat sink:
When replacing electrical parts (power transistors,
diodes) mounted on the chassis surface, disconnect
the Heat Sink Ass'y from the case and perform servic-
ing while separating it.

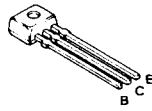
i) Remove two screws (B) from the chassis.

ii) Remove four screws on the rear panel.

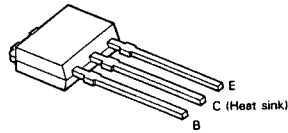
SEMICONDUCTORS



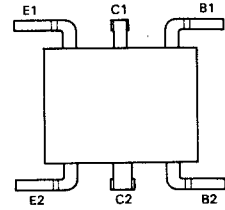
2SB633 (E)
2SD613 (E)



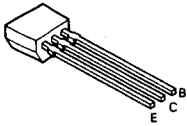
2SA1175 (F)
2SC2785 (F)



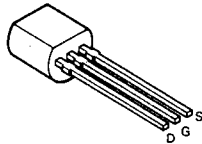
2SB905
2SD1220 (O)



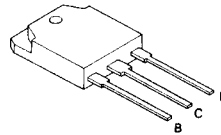
2SC3064
2SC3066



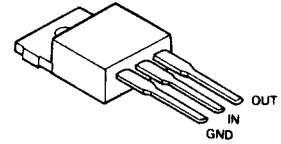
2SC2459 (GR)



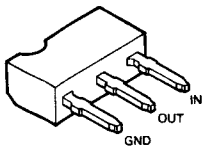
2SK170
2SK117



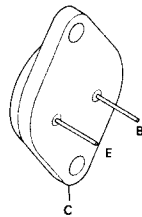
2SA1106
2SC2581



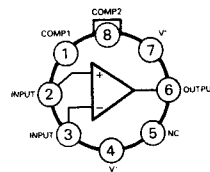
μPC7915HA



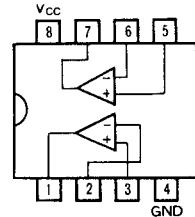
DTC124 (F)
DTC144 (F)



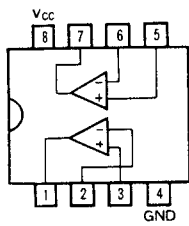
2SC2608



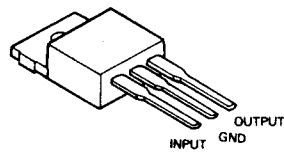
LM308AH



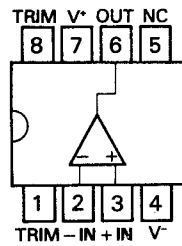
NJM4558D



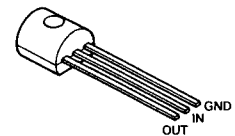
TL082CP



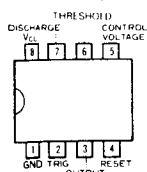
μPC7805H
NJM7815A



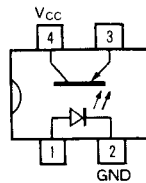
OP07DP



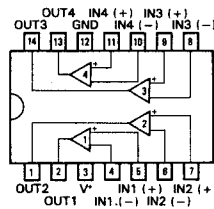
LM79L05ACZ



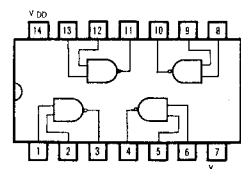
NJM555D



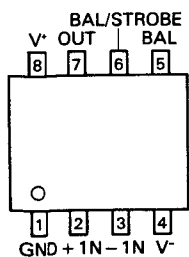
TLP521-1



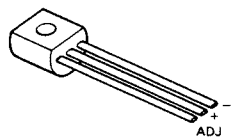
LM339



MC14011BCP



NJM311D



LM336Z-2.5